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SUMMARY OF MAJOR ISSUES CONCERNING THE MONTANA COAL SEVERANCE TAX

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SUMMARY OF MAJOR ISSUES

CONCERNING THE

MONTANA COAL SEVERANCE TAX

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MEMORANDUM

TO: NEWELL ANDERSON
Governor's Office

LEON BILLINGS
Lobbyist

RICH BECHTEL
Federal/State Coordinator

FROM: MIKE McGRATH
BILL CHRISTIANSEN

DATE 4 August 1981

RE: SUMMARY OF MAJOR ISSUES CONCERNING THE MONTANA COAL SEVERANCE TAX

This memo is designed to summarize major arguments that have been used against the tax and to supply some of the rebuttal. Over the last three years we have developed a large quantity of resource material in support of these positions and others. We have attached those materials that we feel are particularly pertinent to the issues raised in this memo. However, additional materials on these issues and others are available should you consider them helpful. Both of us will provide a more in depth examination of any of the issues or materials, should you desire them.

I. CONSUMER RELIEF ... FALSE ISSUE

The proponents of the legislation have consistently maintained that Montana is imposing an unfair tax burden on electricity consumers throughout the midwest.

There are numerous arguments that can be used to show that this is a false issue. Assuming the tax is passed on, the effect on the average electric bill is virtually nil. However, it is not a certainty that the Montana tax is or need be passed on in whole or even in part to consumers. Even if Congress were to limit state severance taxes, the limitation would have little impact on the cost of electricity. The tax is only a small fraction of the ultimate cost of coal generated energy. The cost of transporting coal far exceeds the amount of the tax. Operating costs, fair profit for the utility, and all the taxes paid by the consuming state must also be added.

1. Assuming that the tax is passed through to the ultimate consumer, the effect of Montana's tax on the average residential consumers' electricity bill is minimal. It ranges from two tenths of one percent to consumers of power purchased from Interstate Power Company to 2.2% of the total bill for consumers of electricity from the Lower Colorado River Authority. Montana consumers are among the highest. Exhibit I-1 is a summary of the cost of the tax to the consumer for all of the utilities that purchase Montana coal. The final column on the chart shows the severance

tax as its actual percentage of the total annual consumer bill for each utility. Obviously the total is negligible and it is the height of folly for congress to assume that utility rates will be reduced by cutting the tax in half.

The information was compiled by Bill Christiansen and Tom Coefield at the Department of State Lands. It is based on information gathered from forms filed with the federal government and with the Edison Electric Institute by the utilities themselves. The primary source documents are the Form 423 summaries compiled by the Department of Energy, the Uniform Statistical Reports filed by the utilities with the Edison Electric Institute, and the Burlington Northern Tariffs.

2. The Coefield research has also shown that the Montana severance tax represents a small percentage of the total utility tax burden. Exhibit I-2 contains a series of charts for each utility that purchases Montana coal together with a breakdown of the total tax burden of each. The far right column on each sheet shows that all of the Montana taxes are negligible when compared to the other State and Federal taxes. These figures do not include state sales taxes paid by the consumer.

3. Coal is by far the cheapest of all fossil fuels available as an energy source for utilities. This fact is true even considering the substantial transportation costs

for coal. Montana and Wyoming coal are even a better bargain than other coal. Exhibit I-3 contains a series of charts, based primarily on the Form 423, that show the prices of coal, gas and oil to utilities at the burn site. Coal is shown to be by far the cheapest. Table 41 of the exhibit also demonstrates that Montana and Wyoming coal, including transportation and the tax, is by far the cheapest fuel source at the burn site. These figures are particularly striking when compared to the cost of oil and gas under deregulation.

4. The cost of transporting coal from coal mines in eastern Montana to their destination at the burn site in the mid-west far exceeds any impact on the price of residential electricity of our severance tax. The transportation costs recently drew criticism from the President's Commission on Coal, which found that the Interstate Commerce Commission had established rate guidelines allowing railroads a "7%" premium for coal traffic, a premium which is intended to "subsidize other traffic moving at less than full costs. * * *," President's Commission on Coal, Staff Findings 20 (1980). In fact, the transportation cost represents over 60% of the average price of Montana delivered coal at the burn site. Exhibit I-1, the Coefield Chart, shows the cost of transportation of coal to the mid-west. If you subtract column no. 3, the FOB price of coal, from column no. 1, the delivered price of coal, you get the transportation costs of

coal for each utility. Our figures were derived from the B.N. tariffs and include the costs of water transportation where applicable.

5. Substitution of Montana coal for other fuels would create substantial savings to those utilities. The same result occurs with the substitution of Montana coal for eastern or mid-western coal as well as substituting Montana coal for gas and oil. Exhibit I-4, prepared from the Uniform Statistical Report and Form 423 by Tom Coefield, demonstrates precisely the dramatic savings that some of these utilities could encounter. For example, Detroit Edison could save $177,000,000 per year by just converting to Montana coal. As almost all of these utilities are virtually 100% coal generated, costs of capital conversion would not be a factor.

There is one other factor that is important in comparing our coal to coal in other regions of the country. Most of our coal is compliance coal, low sulphur coal that does not require the use of scrubbers to remove the sulphur at the generating plant. This can save utilities millions in capital investment. However, under the Clean Air Act Amendments of 1977 all utilities are required to use the best available control technology (BACT) irrespective of the sulphur content of the coal. The purpose of this provision is to encourage the use of local coal. See 42 U.S.C.

section 7425. See also, the Clean Air Act Amendments of 1977, A Selective Legislative Analysis, 13 Water L. Rev. 747, 800-12 (1978).

II. BECAUSE APPROXIMATELY 90% OF THE COAL SUBJECT TO THE MONTANA TAX IS EXPORTED TO OTHER STATES, MID-WESTERN CONSUMERS ARE SUFFERING FROM "TAXATION WITHOUT REPRESENTATION."

(1) Initially, it is by no means certain that the tax is or need be passed on in whole or even in part to the ultimate consumers. See M. Gillis, Severance Taxes on Energy Resources in the U.S., Growth and Change (Jan. 1979). (Copy attached as Exhibit II-1.) Gillis argues that since none of the western states have anything close to a dominant market position, each state competes with other states and by itself faces relatively slack demand for coal. Therefore the possibility of substantially exporting a severance tax is "exceedingly slim." Gillis goes on to state that higher taxes would be born by the recipients of the economic rents, i.e., coal mining companies. This is true despite the fact that the companies allege that the tax is passed through to the consumer by viture of their contracts. The draft of a CRS report by David Zimmerman has reached the same conclusion.

(2) Moreover, tax exportation is the rule rather than the exception. The attached articles suggest that virtually all state taxes are exported, in one way or another, to residents of other states. McClure, The Interstate Exportation of State and Local Taxes; Estimates of 1962, 20 National Tax Journal 49 (1967) (copy available in our library); McClure, Severance Taxes on Energy Resources in

the United States, Growth and Change, January 1979 (attached Exhibit II-2); McClure, Economic Constraints On State and Local Taxation of Energy Resources, 31 Nat. Tax Journal 257 (1978) (attached as Exhibit II-3).

(An effort should be made to get Professor McClure to assist with testimony when the bill comes up for hearing. Professor Hellerstein has discussed the subject with McClure and it is our understanding that he is willing to help.)

(3) Finally, because Montana is not a manufacturing state, we're required to import virtually all consumer goods purchased within the state. As a result, we pay many different import taxes and in balance, Montana may well import more taxes than we export. It is possible to follow up on this theory by analysis of the SIC Codes. Phil Brooks, an economist with the Department of Commerce, may have some theories on the procedures that can be used. See attached Exhibit II-4.

III. MONTANA'S TAX RATE IS UNPRECEDENTED AND UNEQUALED

(1) When measured as a tax on energy, Montana's Coal Severance Tax compares favorably with other state taxes on oil and natural gas. It is important to note that what is being discussed in the legislation are taxes on energy. Utilities purchase energy, not necessarily tons of coal or barrels of oil. BTU's (British Thermal Units) are the commonly accepted means of measuring energy. Exhibit III-1 shows that when measured as a tax on energy, the Montana Coal Severance Tax was 12.11 cents per million BTUs in 1980. In Texas the taxes on oil and gas were 12.19 cents per million BTUs, in Louisiana ~~12.32~~ 13.32 cents per million BTUs, in Oklahoma 14.55 cents per million BTUs. Sources for these figures are listed on the exhibit and were gathered primarly from the individual states themselves.

(2) The taxes levied by the consuming states, primarily sales taxes on the use of electricity, are much higher than Montana's tax. For example, Detroit Edison's customers pay a 4% sales tax on the consumption of electricity to the State of Michigan. If those consumers happen to reside within the city of Detroit, they pay an additional 5% city sales tax, for a total of 9%. However, our severance tax averages .3 of one percent of the total residential customer's electric bill. (Source: CCH State Tax

Guide/Also Terry Cohea has submitted information on the sales taxes in other states, attached as exhibit III-2.)

(3) Many states receive much higher revenues and the percentage of their total state revenues from severance taxes is much higher than Montana's. Collections by the top ten states for 1979 were as follows:

1.	Texas	$1,025,550,000
2.	Louisiana	511,589,000
3.	Oklahoma	280,982,000
4.	Alaska	173,685,000
5.	New Mexico	159,431,000
6.	Kentucky	154,017,000
7.	Florida	91,901,000
8.	Wyoming	87,419,000
9.	Minnesota	71,263,000
10.	Montana	53,919,000

In terms of total state revenues, severance taxes in 1979 represented 25.5% of total tax collections for Wyoming; 22% for Louisiana; 21.1% for Alaska; 18.5% for Oklahoma; 18% for Texas; and 13.5% for Montana. Source: Bureau of Census, State Governments Tax Collections in 1979, Table 3 (1980). This table has been updated for collections in 1980. (See Exhibit III-3.)

IV. MINING FEDERAL COAL (THE PEOPLE'S COAL)

Much has been made of the argument that 75% of the coal mining in Montana occurs on federal land and thus Montana is taxing the coal that belongs to all the people of the United States, yet the benefits of the tax are reaped only by Montana citizens.

(1) First of all, the legality of that assertion is untrue. While much of the coal mining in Montana is done pursuant to federal leases, the tax is not imposed on "the people's coal." When the Department of Interior negotiates a lease with the coal mining company, the ownership of that coal in fact is passed on to the mining company. In other words, the government receives its return in the leasing process and the tax is applied to the private property of the coal mining companies. (See memo of Roy Andes regarding the legal incidence of the tax, attached as Exhibit IV-1.)

(2) Furthermore, while it may be true that a large percentage of the coal is mined pursuant to federal leases, those leases refer to the federal mineral estate and not necessarily to the surface estate. Exhibit IV-2, A BLM Study conducted in 1977 of the Decker-Birney Planning Area, indicates that only 12% of the non-Forrest Service surface area over federal mineral estate is owned by the federal

government. The balance of the surface estate is either in state or private hands. Thus the argument that we are mining the people's coal is somewhat misleading. Also attached are memos from Kelly Blake and Suzanne McNally at State Lands on federal coal leasing policy (Exhibit IV-3A); coal production of federal mineral vs. total production (Exhibit IV-3B); and a memo with an overview of coal leasing (Exhibit IV-3C).

Because the government, in effect, divests itself of ownership of the coal at the time of negotiating the lease with the mining company, the public environmental and economic interests should be protected at that time. Furthermore, the Montana tax adds to the FOB price of the coal and thus results, under the formulas used, in an increase in federal royalties rather than a decrease.

(3) It should be noted that the proponents argue that the government's rate of return on those leases is reduced because of the reduced prices companies are willing to pay as a result of the increased cost of mining due to taxes. Exhibit IV-4 indicates that the federal revenue from coal leases is substantially less than that received from oil and gas.

The exhibit also demonstrates that state revenue, as a result of the state's receipt of 50% of the royalties on the coal leases, has been negligible when compared to the state impacts.

(4) Much has been said about the state's receipt of federal reclamation fees. The federal government collects $.35/ton on surface mined coal. Exhibit IV-5 discusses the fees in detail and indicates that less than $1 million has been released for Montana reclamation projects while almost $34 million has been collected on coal mined within Montana.

It is by no means certain that reclamation will be successful. The state of Montana requires the mining companies to post a reclamation bond which is not released until the reclamation project is proven effective. To date, the State has not released a single bond.

Of course, coal is a non-renewable resource, it is subject to a one-time extraction and then it is gone forever. The Coal Severance Tax is the only way Montana can obtain a return for the loss of that non-renewable resource.

V. OPPONENTS ASSERT THAT MONTANA AND WYOMING ARE EXPLOITING THE RESIDENTS OF OTHER STATES BY VIRTUE OF THEIR "MONOPOLY" POSITION TO LOW-SULPHUR COAL.

The assertion that Montana and Wyoming have a monopoly on low-sulphur coal is factually untrue. As mentioned earlier, the real reason that Montana and Wyoming coal is purchased is that it is very inexpensive compared to other coal, plus it has a low sulphur content. The entire United States is rich in coal, with approximately 31% of the known recoverable coal in the world, representing a several hundred years supply. See President's Commission on Coal, Report to the President (1980). Coal deposits are found in 31 states and mined in 26, President's Commission on Coal, Coal Data Book, 62-63, 66 (1978). In 1977 Montana coal production was 20 million tons or three percent (3%) of the entire United States production, id., at 66-67, 89. We increased production to approximately 30 million tons in 1980.

Both states have a surplus of coal in substantial quantities for sale at the present time. This coal is available with present on-site mining equipment. Wyoming presently has over 50 million tons of coal available. Wyoming Coal Production Summary of Coal Contracts--Geological Survey of Wyoming--Public Information Circular No. 12 (1980). Montana has an excess of 14½ million tons available at the present time. (See memo of Brace Hayden, Department of State Lands, Exhibit V-1.)

Moreover, many other states have compliance, low-sulphur coal that is available for sale. For example, 44 percent of West Virginia's coal is compliance coal and 30% of Kentucky's coal is low-sulphur. Western states like Colorado, Utah and New Mexico have vast quantities of compliance coal. (See memo of Lloyd Bender, Department of Agricultural Economics, Montana State University, citing a 1976 publication of the Argonne National Laboratory, attached as Exhibit V-2. The exhibit also contains an interesting analysis of the factors that have limited the development of Montana coal.)

VI. THE COAL TAX RAISES REVENUE FAR IN EXCESS OF THE STATE'S NEEDS

It has been alleged that the revenues derived from the coal severance tax far exceed those revenues required to mitigate the impacts of coal mining in the affected region of the state. Much has been made of the fact that Montana puts 50% of the revenues from the tax into a permanent trust fund for future generations, and of the fact that state government has been able to provide tax relief to its citizens for the past two legislative sessions.

(1) Only 19% of the revenues from the coal tax is allotted to the state's general fund for the general support of state government. The rest of the tax is earmarked for local impact assistance and other impact related programs. See Local Impact Assistance Grant Program (1975 -1980), Montana Coal Board, attached as Exhibit VI-1 (the formula for distribution of the severance tax was altered by the 1981 legislature in some minor respects since the promulgation of this report). Funds for local impacts are channeled into energy development programs, public schools, the educational trust fund, libraries, parks, renewable resource development, land-use planning and conservation districts. In addition it is estimated that at least $160,000,000.00 will be necessary for future highway

construction and maintenance in the coal impact areas. (Exhibit VI-2.)

Of the 19% of the tax that is dedicated to the state general fund, it can be argued that the funds are used as general appropriations to the state agencies, (Department of State Lands, Department of Natural Resources, Department of Commerce, Department of Health and Environmental Resources), that are charged with administering the various governmental programs concerned with the problems caused by the development of coal in Montana. For example, coal mining companies are required to pay a fee for obtaining a permit to open a new mine. However, the permit fees required do not begin to cover the expense incurred by the state. Numerous other examples abound to support this argument. Senator Towe has written several arguments in this area as well as others. (See attached Exhibit VI-3A, VI-3B.)

(2) History has provided Montana citizens with many vivid examples of the price we must pay for our "colonial economy." As Justice John Sheehy noted in the Montana Supreme Court opinion upholding the tax: "Montana's experience has shown that its mineral wealth could be exhausted and exported with little left for Montana to make up the loss of its irreplaceable resources. Montana has been painfully educated by the extreme economic jolts that follow when the mine runs out, the oil depletes, or the timber saws come still. We have a good many examples to teach us what happens to our hills when the riches of our treasure state are spent."

With this in mind, in 1976 the voters in Montana amended the Montana Constitution, by a 2 to 1 margin, to provide that 50% of the coal tax revenue be placed in a permanent trust fund for future generations. Montanans voted to receive a fair return for the depletion of our natural resource; to have something left when the inevitable bust occurs in our economic base; and to avoid the situation that has occured in Appalachia and other regions of the country as a result of past strip mining practices.

According to figures obtained by Rich Bechtel, the Appalachian Regional Commission has spent as much as $370 million a year to attempt to partially mitigate social, economic and environmental devastation that has occurred in the past. Our trust fund is Montana's attempt to anticipate and solve some of these problems on our own.

Eleven states have established trust funds generated from natural resource taxation, including both Minnesota and Florida. Alaska's trust has gone as high as $1.8 billion dollars. (See memo of Terry Cohea, Budget Analyst, Office of Budget and Program Planning, attached as Exhibit VI-4.)

As for the interest on Montana's Trust Fund, $34 million dollars has been pledged to school foundation programs, the long-range building program and economic development. The trust fund itself has been pledged as collateral for bonds that will be issued for Montana water development projects.

VII. TAXATION RATES OF LOCAL GOVERNMENTS IN THE IMPACT AREAS.

Proponents delight in citing the fact that the mill levies of county government in the areas of impact have been reduced since the imposition of the tax and thus argue that the legitimate needs of coal mining have already been met. They refer to two reports done for the legislative branch of government in 1977 and 1979 that specifically support those conclusions.

The recital of the county figures is misleading. The major impacts are not felt by county government. Substantial burdens are placed on other local governments, such as cities and school districts. Moreover, the figures show mill levies in impact counties have actually increased in most instances. For example Treasure County levies have increased 91% from 1969 to 1981; Big Horn County levies have increased during the same period 29%. The only county showing a decrease in mill levies was Rosebud County where the major power plants contribute to the tax base. Six other counties within the state that are not affected by coal development have reduced mill levies.

During this same period, levies for the city of Forsyth, the Rosebud County seat, are up 589%. The Rosebud County elementary school district levy is up 278%; the high school district levy is up 82%. Meanwhile mill levies for the city of Hardin have increased 114%. The levy for the Hardin High School District is up 860%.

Sources: Memorandum of Murdo Campbell, Administrative Officer, Montana Coal Board, attached as Exhibit VII-1. Mike Walsh for the Department of Revenue has done an extensive analysis of mill levy comparisons throughout the state, and the fruits of his research are available.

VIII. FACTORS NOT SUSCEPTIBLE TO A DOLLARS AND CENTS QUANTIFICATION.

There are numerous unknowns and uncertainties surrounding the strip mining of coal in eastern Montana. The environmental impacts are enormous and there are numerous problems that cannot be resolved at this time. For example, water is perhaps Montana's most precious resource and in short supply in eastern Montana. However, the mining of coal creates great disturbance to the underground acquifers that store water in that part of the State. Coal mining in effect replaces those acquifers with underground dams. The impacts of that process are unknown at this time. The only certainty is that after the last ton of coal is mined, and the last dollar of severance tax is paid, Montana will have to deal with these and a host of other problems that the coal companies leave in their wake. Exhibit VIII-1 is a brief list of many of those factors that are unknown and unquantifiable. This list covers both environmental interruption as well as economic, social and psychological problems. The list can probably be expanded with imput from employees of those departments that are concerned with the impacts. The United States Supreme Court, in its opinion, noted that many of these factors are not quantifiable, certainly not in a court of law, and used that as one basis to decline to examine state tax rates.

Exhibit 1

Exhibit I-1

SUMMARY OF THE COST TO THE CONSUMER OF THE MONTANA SEVERANCE TAX
1980

Utility	Quantity[1] (1000s tons)	Cost of Montana coal (per ton) Dlvrd[1]	f.o.b.[2]	CSP[3]	Severance tax per ton[4]	Severance tax paid	Residential percentage of total Kwh Sales[5]	Average number of residential customers[5]	Average annual residential cost	Average annual residential bill	Severance tax percentage of average annual residential bil
Central Illinois Light	523.8	$30.71	$11.62	$8.12	$2.44	$ 1,278,000	30.4	165,075	$2.35	$551.25	0.4
Commonwealth Edison	4,313.0	38.47	17.91	12.86	3.86	16,648,000	28.7	2,695,895	1.77	412.74	0.4
Detroit Edison	2,636.0	19.93	11.87	8.38	2.51	6,616,000	30.4	1,622,025	1.24	359.86	0.3
Houston Lighting & Power	94.4	36.89	13.59	9.64	2.89	273,000	24.3	883,755	0.08	711.28	---
Interstate Power	249.4	25.44	8.00	5.51	1.65	412,000	23.5	122,097	0.79	414.82	0.2
Lower Colorado River Auth.	925.5	43.32	20.76	14.98	4.49	4,156,000	4.1[f]	17,239[f]	9.88	454.90	2.2
Minnesota Power & Light	3,028.0	15.94	8.50	5.59	1.68	5,087,000	8.4	96,265	4.44	368.56	1.2
Montana Dakota Utilities	292.8	12.80	11.15	8.37	1.56	457,000	42.8[g]	89,790[g]	2.18	315.62	0.7
Montana Power Company	1,777.6	7.66	6.19	4.24	1.27	2,258,000	19.9[g]	191,025[g]	2.35	229.15	1.0
Northern States Power	7,292.3	17.81	8.45	5.87	1.76	12,834,000	27.8	958,036	3.72	332.18	1.1
Puget Sound Power & Light	1,293.4	6.19	6.19	4.24	1.27	1,643,000	50.4	480,276	1.72	371.66	0.5
Wisconsin Power & Light	1,985.1	19.63	7.73	5.36	1.61	3,196,000	26.4	264,401	3.43	405.26	0.8

[1]Delivered cost. Source: U.S. Department of Energy, Form 423 summary, unpublished computer printout.
[2]f.o.b., freight on board, delivered cost less estimated transportation charges.
[3]C.S.P., contract sales price, fob = CSP + 0.3CSP[a] + 0.005CSP[b] + (0.45)(CSP)(Mill levy)[c] + $0.35[d] + 0.02 f.o.b.
[4]30 percent of CSP.
[5]Source: Company's Uniform Statistical Report to Edison Electric Institute for year ended December 31, 1980.
[a]Montana Severance Tax. [b]Resource Indemnity Trust Tax. [c]Gross Proceeds (local ad valorem property tax).
[d]Federal Abandoned Mine Reclamation Fee. [e]Federal Black Lung Tax, has an upper limit of $0.25 per ton.
[f]Source: Company's Annual report to the Economic Regulatory Administration, U.S. Dept. of Energy
[g]Source: Company's F.E.R.C. Form 1, for the year ending December 31, 1980.

Central Illinois Light

Tax burden on residential utility customers

1980

Source: Company's Uniform Statistical Report for year ended Dec. 31, 1980

	Amount	Residential (30.4%)	Per Customer
Montana State[1] and local taxes[a]			
Severance tax	$1,278,000	$388,512	$2.35
Gross proceeds tax	211,000	64,144	0.39
Resource indemnity trust tax	21,000	6,384	0.04
State income tax[2]	61,000	18,544	0.11
Subtotal	$1,571,000	$477,584	$2.89
Illinois State and local taxes[4]			
Property	$6,034,000	$1,834,336	$11.11
Franchise	198,000	60,192	0.36
Gross receipts	12,382,000	3,764,128	22.80
State income tax	1,578,000	479,712	2.91
Deferred state income tax (net)	1,824,000	554,495	3.36
Miscellaneous	266,000	80,864	0.49
Subtotal	$22,282,000	$6,773,727	$41.03
Federal[1] taxes			
Black lung and reclamation[3a]	$304,000	$92,416	$0.56
Payroll	1,303,000	396,112	2.40
Federal income tax	5,958,000	1,811,232	10.97
Deferred Federal income tax (net)	10,927,000	3,321,808	20.12
Investment tax credit adjustment	3,486,000	1,059,744	6.42
Subtotal	$21,978,000	$6,681,312	$40.47
TOTAL	$45,831,000	$13,932,623	$84.39

[1]Does not include royalties
[2]Assumed to be 1 percent of gross revenues (i.e. mine's gross margin is 15%)
[3]On Montana coal only
[a]Source: Attached Severance tax summary

[4]Does not include the Illinois 5 percent sales tax. The average Illinois residential customer paid $27.56 in sales tax in 1980, 7.0 times the amount paid for all Montana taxes.

Wisconsin Power and Light

Tax burden on residential utility customers

1980

Source: Company's Uniform Statistical Report for the year ended Dec. 31, 1980.

	Amount	Residential (28.4%)	Per Customer
Montana State[1] and local taxes[a]			
Severance tax	$3,196,000	$907,664	$3.43
Gross proceeds tax	496,000	133,196	0.50
Resource indemnity trust tax	53,000	15,052	0.06
State income tax[2]	153,000	43,452	0.16
Subtotal	$3,871,000	$1,099,364	$4.15
Wisconsin State and local taxes[4]			
Property	$8,720,000	$2,476,480	$9.37
Franchise	1,000	284	-----
Gross receipts	331,000	94,004	0.36
Unemployment	48,000	13,632	0.05
State income tax	4,055,000	1,151,620	4.36
Miscellaneous	11,000	3,124	----
Subtotal	$13,166,000	$3,739,144	$14.14
Federal[1] taxes			
Black lung and reclamation[3a]	$993,000	$282,012	$1.07
Payroll	2,774,000	787,816	2.98
Federal income tax	14,095,000	4,002,980	15.14
Investment tax credit adjustment	6,580,000	1,868,720	7.07
Subtotal	$24,442,000	$6,941,528	$26.26
TOTAL	$41,479,000	$11,780,036	$44.55

[1]Does not include royalties
[2]Assumed to be 1 percent of gross revenues (i.e. mine's gross margin is 15%)
[3]On Montana coal only
[a]Source: Attached Severance tax summary

[4]Does not include the Wisconsin 4 percent sales tax. The average residential customer paid $16.21 in sales tax in 1980, 3.9 times the amount paid for all Montana taxes.

Northern States Power

Tax burden on residential utility customers

1980

Source: Company's Uniform Statistical Report for the year ended Dec. 31, 1980.

	Amount	Residential (27.8%)	Per Customer
Montana State[1] and local taxes[a]			
Severance tax	$12,834,000	$3,567,852	$3.72
Gross proceeds tax	1,830,000	508,740	0.53
Resource indemnity trust tax	214,000	59,492	0.06
State income tax[2]	616,000	171,248	0.18
Subtotal	$15,494,000	$4,307,332	$4.49
Minnesota, North Dakota, South Dakota, and Wisconsin State and local taxes[4]			
Property	$59,732,000	$16,605,496	$17.33
Franchise	612,000	170,136	0.18
Gross receipts	11,352,000	3,155,856	3.29
State income tax	13,597,000	3,779,966	3.95
Deferred state income tax (net)	2,888,000	802,864	0.84
Miscellaneous	748,000	207,944	0.22
Subtotal	$88,929,000	$24,722,262	$25.81
Federal[1] taxes			
Black lung and reclamation[3a]	$3,792,000	$1,054,176	$1.10
Payroll and unemployment	6,403,000	1,780,034	1.86
Federal income tax	61,035,000	16,967,730	17.71
Deferred Federal income tax (net)	8,637,000	2,401,086	2.51
Investment tax credit adjustment	8,436,000	2,345,208	2.45
Subtotal	$88,303,000	$24,548,234	$25.63
TOTAL	$192,726,000	$53,577,828	$55.93

[1]Does not include royalties
[2]Assumed to be 1 percent of gross revenues (i.e. mine's gross margin is 15%)
[3]On Montana coal only
[a]Source: Attached Severance tax summary

[4]Does not include the Minnesota or Wisconsin 4 percent sales tax. The average Minnesota or Wisconsin residential customer paid $13.29 in sales tax, 3.0 times the amount paid for all Montana taxes.

Commonwealth Edison and subsidiaries

Tax burden on residential utility customers

1980

Source: Company's Uniform Statistical Report for year ended Dec. 31, 1980

	Amount	Residential (28.7%)	Per Customer
Montana State[1] and local taxes[a]			
Severance tax	$16,648,000	$4,777,976	$1.77
Gross proceeds tax	2,246,000	644,602	0.24
Resource indemnity trust tax	277,000	79,499	0.03
State income tax[2]	772,000	221,564	0.08
Subtotal	$19,943,000	$5,723,641	$2.12
Illinois and Indiana State and local taxes[4]			
Property	$41,525,000	$11,917,675	$4.42
Franchise	1,515,000	434,805	0.16
Gross receipts	218,862,000	62,813,394	23.30
State income tax	14,601,000	4,190,487	1.55
Deferred state income tax (net)	17,073,000	4,899,951	1.82
Municipal compensation	44,032,000	12,637,184	4.69
Miscellaneous	65,938,000	18,924,206	7.02
Subtotal	$403,546,000	$115,817,702	$42.96
Federal[1] taxes			
Black lung and reclamation[3a]	$2,588,000	$742,756	$0.28
Payroll	18,372,000	5,272,764	1.96
Federal income tax	103,241,000	29,630,167	10.99
Deferred Federal income tax (net)	93,460,000	26,823,020	9.95
Investment tax credit adjustment	(8,310,000)	(2,384,970)	(0.88)
Subtotal	$209,351,000	$60,083,737	$22.30
TOTAL	$632,840,000	$181,625,080	$67.38

[1]Does not include royalties
[2]Assumed to be 1 percent of gross revenues (i.e. mine's gross margin is 15%)
[3]On Montana coal only
[a]Source: Attached Severance tax summary

[4]Does not include the Illinois 5 percent sales tax. The average Illinois residential customer paid $20.64 in sales tax in 1980, 9.7 times the amount paid for all Montana taxes.

Detroit Edison

Tax burden on residential utility customers

1980

Source: Company's Uniform Statistical Report for year ended Dec. 31, 1980

	Amount	Residential (30.4%)	Per Customer
Montana State[1] and local taxes[a]			
Severance tax	$6,616,000	$2,011,264	$1.24
Gross proceeds tax	895,000	272,080	0.17
Resource indemnity trust tax	110,000	33,440	0.02
State income tax[2]	313,000	95,152	0.06
Subtotal	$7,934,000	$2,411,936	$1.49
Michigan State and local taxes[4]			
Property	$92,695,000	$28,179,280	$17.37
Payroll	880,000	267,520	0.16
Single business	6,537,000	1,987,248	1.23
Deferred state income tax (net)	(4,219,000)	(1,282,576)	(0.79)
Use	1,020,000	310,080	0.19
Miscellaneous	447,000	135,888	0.08
Subtotal	$97,360,000	$29,597,440	$18.24
Federal[1] taxes			
Black lung and reclamation[3a]	$1,555,000	$472,720	$0.29
Payroll	12,016,000	3,652,864	2.25
Federal income tax	3,730,000	1,133,920	0.70
Deferred Federal income tax (net)	63,345,000	19,256,880	11.87
Investment tax credit adjustment	(21,815,000)	(6,631,760)	(4.09)
Subtotal	$58,831,000	$17,884,624	$11.02
TOTAL	$164,125,000	$49,894,000	$30.75

[1]Does not include royalties
[2]Assumed to be 1 percent of gross revenues (i.e. mine's gross margin is 15%)
[3]On Montana coal only
[a]Source: Attached Severance tax summary

[4]Does not include sales taxes (Michigan - 4 percent, Detroit - 5 percent). The average Detroit residential customer paid $17.99 in sales tax in 1980, 12.1 times the amount paid for all Montana taxes.

Interstate Power

Tax burden on residential utility customers

1980

Source: Company's Uniform Statistical Report for year ended Dec. 31, 1980

	Amount	Residential (23.5%)	Per Customer
Montana State[1] and local taxes[a]			
Severance tax	$412,000	$96,820	$0.79
Gross proceeds tax	68,000	15,980	0.13
Resource indemnity trust tax	7,000	1,645	0.01
State income tax[2]	20,000	4,700	0.04
Subtotal	$507,000	$119,145	$0.97
Iowa, Minnesota, and Illinois State and local taxes[4]			
Property	$7,266,000	$1,707,510	$13.98
Franchise	51,000	11,985	0.10
Gross receipts	277,000	65,095	0.53
Unemployment	16,000	3,760	0.03
State income tax	1,979,000	465,065	3.81
Deferred state income tax (net)	441,000	103,635	0.85
Miscellaneous	131,000	30,785	0.25
Subtotal	$10,161,000	$2,387,835	$19.55
Federal[1] taxes			
Black lung and reclamation[3a]	$127,000	$29,845	$0.24
Payroll	820,000	192,700	1.58
Federal income tax	8,443,000	1,984,105	16.25
Deferred Federal income tax (net)	2,276,000	534,860	4.38
Investment tax credit adjustment	734,000	172,490	1.41
Subtotal	$12,400,000	$2,914,000	$23.83
TOTAL	$23,068,000	$5,420,980	$44.35

[1]Does not include royalties
[2]Assumed to be 1 percent of gross revenues (i.e. mine's gross margin is 15%)
[3]On Montana coal only
[a]Source: Attached Severance tax summary

[4]Does not include sales taxes (Iowa - 3 percent, Minnesota - 4 percent, and Illinois - 5 percent). The average residential customer paid $12.44(Iowa), $16.59(Minnesota), or $20.74(Illinois) in sales tax in 1980, 12.8, 17.1, or 21.4 times the amount paid in all Montana taxes respectively.

Minnesota Power and Light

Tax burden on residential utility customers

1980

Source: Company's Uniform Statistical Report for the year ended Dec. 31, 1980.

	Amount	Residential (8.4%)	Per Customer
Montana State[1] and local taxes[a]			
Severance tax	$5,087,000	$427,308	$4.44
Gross proceeds tax	724,000	60,816	0.63
Resource indemnity trust tax	85,000	7,140	0.07
State income tax[2]	257,000	21,588	0.22
Subtotal	$6,153,000	$516,852	$5.36
Minnesota State and local taxes[4]			
Property	$14,553,000	$1,222,452	$12.70
Unemployment	49,000	4,116	0.04
State income tax	558,000	46,872	0.49
Deferred state income tax (net)	5,337,000	448,308	4.66
Miscellaneous	20,000	1,680	0.02
Subtotal	$20,517,000	$1,723,428	$17.91
Federal[1] taxes			
Black lung and reclamation[3a]	$1,575,000	$132,300	$1.37
Payroll	1,418,000	119,112	1.24
Federal income tax	319,000	26,796	0.28
Deferred Federal income tax (net)	18,039,000	1,515,276	15.74
Investment tax credit adjustment	1,892,000	158,928	1.65
Subtotal	$23,243,000	$1,952,412	$20.28
TOTAL	$49,913,000	$4,192,692	$43.55

[1]Does not include royalties
[2]Assumed to be 1 percent of gross revenues (i.e. mine's gross margin is 15%)
[3]On Montana coal only
[a]Source: Attached Severance tax summary

[4]Does not include the Minnesota 4 percent sales tax. The average Minnesota residential customer paid $14.74 in sales tax in 1980, 2.8 times the amount paid for all Montana taxes.

Exhibit I-3

DOE/EIA-0075(

Energy Data Report

Cost and Quality of Fuels for Electric Utility Plants— 1980

FPC Form No. 423

U.S. Department of Energy
Energy Information Administration
Assistant Administrator for Energy Data Operations

able 3. Average Cost of Fossil Fuel Receipts to Electric Plants (Cents per Million Btu)

Fuel	1977 Average Cost	1978 Average Cost	1978 Percent Change From 1977	1979 Average Cost	1979 Percent Change From 1978	1980 Average Cost	1980 Percent Change From 1979
oal.....	94.7	111.6	17.8	122.4	9.7	135.1	10.3
il.....	225.5	219.0	-2.9	308.4	40.8	431.5	39.9
as.....	129.4	142.8	10.4	175.0	22.5	221.4	26.5
verage.	129.5	140.9	8.8	164.2	16.5	190.4	16.0

urce: •Federal Power Commission Form 423.

able 4. Estimated Cost of Fossil Fuels Consumed by Electric Utility Plants, 1977-1980 (Million Dollars)

Fuel	1977 Estimated Cost	1978 Estimated Cost	1978 Percent Change From 1977	1979 Estimated Cost	1979 Percent Change From 1978	1980 Estimated Cost	1980 Percent Change From 1979
oal....	9,719.6	11,439.2	17.7	13,789.4	20.5	16,377.5	18.8
il.....	8,623.7	8,554.2	- 0.8	9,947.5	16.3	11,384.7	14.4
as.....	4,241.4	4,718.2	11.2	6,318.7	33.9	8,402.4	33.0
otal..	22,584.7	24,711.6	9.4	30,055.6	21.6	36,164.0	20.3

te: Calculated by applying average unit cost of fossil fuels
ceipts to electric plants (FPC Form 423) to the
antities of fuels consumed (FPC Form 4).

Table 10. Regional Quantities and Cost of Coal Receipts, 1980

Destination	Contract Coal			Spot Coal		
		Cost			Cost	
	Quantity (thousand tons)	(cents per million Btu)	(dollars per ton)	Quantity (thousand tons)	(cents per million Btu)	(dollars per ton)
North Eastern (New England and Middle Atlantic)	39,161.2	140.7	34.25	13,690.8	131.7	32.42
Mid Western [1] (East North Central and West North Central)	195,157.7	140.1	29.41	27,575.4	137.88	31.58
South Eastern (South Atlantic and East South Central)	151,869.6	153.1	36.52	22,849.2	144.9	35.27
West South Central	59,998.7	124.8	19.09	0.0	0.0	0.0
Western [2] (Mountain and Pacific)	79,607.1	76.13	13.96	4,315.5	19.33 E.	13.36
Total	525,564.4	134.7	28.31	68,430.9	137.3	32.21

[1] Excluding North and South Dakota.
[2] Including North and South Dakota.

Table 41. Primary Energy Purchase Data for All Reporting Plants by Census Region and State, 1980

Census Region and State	Total Btu (Billions)				% of Total Btu			Avg. Dr c pe
	Total	Coal	Oil	Gas	Coal	Oil	Gas	Coal
New England	**519,493.8**	**45,165.4**	**467,609.3**	**6,718.9**	**8.7**	**90.0**	**1.3**	**172.9**
Connecticut	131,962.5	-	131,962.5	-	-	100.0	-	-
Maine	21,643.0	-	21,643.0	-	-	100.0	-	-
Massachusetts	305,523.0	16,946.8	282,096.5	6,479.9	5.5	92.3	2.1	194.6
New Hampshire	51,294.5	28,218.8	23,075.7	-	55.0	45.0	-	159.8
Rhode Island	8,683.2	-	8,683.2	-	-	100.0	-	-
Vermont	387.4	-	148.4	239.0	-	38.3	61.7	-
Middle Atlantic	**2,043,808.4**	**1,244,237.8**	**589,719.4**	**209,851.2**	**60.9**	**28.9**	**10.3**	**137.2**
New Jersey	241,352.7	66,133.0	92,155.2	83,064.5	27.4	38.2	34.4	180.3
New York	649,610.2	156,880.6	367,693.2	125,036.4	24.1	56.6	19.2	147.2
Pennsylvania	1,152,845.4	1,021,224.2	129,871.0	1,750.2	88.6	11.3	.2	132.9
East North Central	**3,742,216.3**	**3,526,888.7**	**162,642.7**	**52,684.8**	**94.2**	**4.3**	**1.4**	**146.7**
Illinois	842,185.2	739,024.1	84,136.3	19,024.8	87.8	10.0	2.3	161.6
Indiana	802,562.0	796,416.9	4,682.0	1,463.1	99.2	.6	.2	126.5
Michigan	606,423.7	532,018.1	58,027.4	16,378.2	87.7	9.6	2.7	156.4
Ohio	1,177,801.3	1,161,549.4	12,588.0	3,663.9	98.6	1.1	.3	147.8
Wisconsin	313,244.0	297,880.2	3,209.0	12,154.8	95.1	1.0	3.9	141.7
West North Central	**1,549,317.8**	**1,413,135.8**	**13,851.2**	**122,530.8**	**91.2**	**.9**	**7.9**	**110.0**
Iowa	205,679.0	199,500.5	739.0	5,439.5	97.0	.4	2.6	138.7
Kansas	274,714.8	188,135.0	692.5	85,887.3	68.5	.3	31.3	107.1
Minnesota	226,243.7	214,777.7	4,928.7	6,537.3	94.9	2.2	2.9	104.3
Missouri	547,616.4	528,631.4	4,810.7	14,174.3	96.5	.9	2.6	118.8
Nebraska	98,171.0	86,711.8	1,527.9	9,931.2	88.3	1.6	10.1	124.2
North Dakota	161,988.5	161,655.8	332.7	-	99.8	.2	-	55.6
South Dakota	34,904.2	33,723.5	619.7	561.0	96.6	1.8	1.6	76.3
South Atlantic	**3,411,358.7**	**2,536,950.5**	**689,858.8**	**184,549.4**	**74.4**	**20.2**	**5.4**	**153.1**
Delaware	70,937.7	26,989.2	37,296.5	6,651.9	38.0	52.6	9.4	163.9
District of Columbia	9,535.1	-	9,535.1	-	-	100.0	-	-
Florida	829,809.9	205,723.3	464,982.7	159,104.0	24.8	56.0	19.2	180.0
Georgia	517,362.1	507,201.9	6,393.2	3,767.0	98.0	1.2	.7	150.0
Maryland	212,728.8	148,591.7	58,793.5	5,343.6	69.9	27.6	2.5	153.8
North Carolina	578,752.8	575,019.8	2,213.9	1,519.1	99.4	.4	.3	156.7
South Carolina	221,613.4	201,138.8	14,896.2	5,578.4	90.8	6.7	2.5	155.7
Virginia	226,187.7	130,128.5	93,605.5	2,453.7	57.5	41.4	1.1	171.3
West Virginia	744,431.3	742,157.3	2,142.2	131.7	99.7	.3	(*)	140.6
East South Central	**1,777,512.6**	**1,642,879.3**	**37,612.3**	**97,021.0**	**92.4**	**2.1**	**5.5**	**150.2**
Alabama	478,121.3	474,373.4	2,182.6	1,565.4	99.2	.5	.3	161.2
Kentucky	573,378.3	570,554.1	885.8	1,938.4	99.5	.2	.3	130.8
Mississippi	215,770.7	90,009.6	32,243.9	93,517.2	41.7	14.9	43.3	183.8
Tennessee	510,242.3	507,942.2	2,300.1	-	99.5	.5	-	155.7
West South Central	**3,311,867.6**	**917,798.1**	**79,797.2**	**2,314,272.4**	**27.7**	**2.4**	**69.9**	**124.8**
Arkansas	138,652.3	55,706.1	21,536.5	61,409.6	40.2	15.5	44.3	133.6
Louisiana	515,589.0	33,164.8	46,532.1	435,892.1	6.4	9.0	84.5	195.5
Oklahoma	477,715.8	137,101.9	106.7	340,507.2	28.7	(*)	71.3	123.4
Texas	2,179,910.5	691,825.2	11,621.9	1,476,463.4	31.7	.5	67.7	121.0
Mountain	**1,423,497.5**	**1,226,533.1**	**32,733.3**	**164,231.0**	**86.2**	**2.3**	**11.5**	**79.6**
Arizona	328,803.5	264,919.7	12,107.4	51,776.4	80.6	3.7	15.7	97.6
Colorado	257,302.0	224,024.3	2,187.4	31,090.3	87.1	.9	12.1	85.6
Idaho	49.4	-	-	49.4	-	-	100.0	-
Montana	61,537.1	57,195.6	61.5	4,280.0	92.9	.1	7.0	44.4
Nevada	144,641.5	99,685.6	15,901.3	29,054.5	68.9	11.0	20.1	105.0
New Mexico	251,276.3	205,661.7	1,545.5	44,069.1	81.8	.6	17.5	55.9
Utah	123,746.5	119,036.4	848.0	3,862.2	96.2	.7	3.1	113.8
Wyoming	256,141.1	256,009.8	82.2	49.1	99.9	(*)	(*)	56.8
Pacific	**1,092,182.8**	**95,308.2**	**457,815.6**	**539,059.0**	**8.7**	**41.9**	**49.4**	**104.4**
California	990,370.8	-	454,167.1	536,203.7	-	45.9	54.1	-
Oregon	22,352.2	17,548.2	2,104.1	2,699.8	78.5	9.4	12.1	141.2
Washington	79,459.8	77,760.0	1,544.4	155.5	97.9	1.9	.2	96.1
Contiguous U.S.	**16,871,255.1**	**12,648,896.8**	**2,531,439.9**	**3,690,918.3**	**67.0**	**13.4**	**19.6**	**135.1**

(*) Denotes values that round to zero.

Comparison of the delivered cost of Montana coal and other fuels

1980

Utility system	Cost of Montana coal (per million Btu)[a]	Cost of other fuel (net of Montana coal)						Potential savings by using Montana coal	
		Coal[b]		Oil[b]		Gas[b]		Substituted for other coal only	All conventional steam fuels
		Total cost (thousands)	cost per million Btu	Total cost (thousands)	cost per million Btu	Total cost (thousands)	cost per million Btu		
Central Illinois Light	$1.774	$77,977	$1.802	---	---	---	---	$1,212,000	$1,212,000
Commonwealth Edison	2.009	494,954	2.016	$409,246	$5.324	$12,887	$3.180	1,758,000	261,388,000
Detroit Edison	1.028	448,121	1.701	92,354	3.755	15,701	2.994	177,298,000	254,577,000
Houston Lighting and Power	2.090	200,341	2.055	11,669	2.746	947,346	2.158	(3,412,000)	28,229,000
Interstate Power	1.473	51,731	1.484	386	5.525	161	1.494	383,000	669,000
Lower Colorado River Authority	2.243	50,247[c]	1.846[c]	1,819[c]	5.795[c]	49,045[c]	2.590[c]	(10,808,000)	(3,122,000)
Minnesota Power and Light	0.913	---	---	10,563	4.303	11	2.212	---	8,434,000
Montana Dakota Utilities	0.970	--- [c]	--- [c]	308[c]	5.010[c]	15[c]	1.926[c]	---	256,000
Montana Power Company	0.406	--- [c]	--- [c]	750[c]	4.741[c]	16,540[c]	3.874[c]	---	15,492,000
Northern States Power	1.022	19,618[c]	1.258[c]	15,564[c]	5.797[c]	1,244[c]	2.028[c]	3,680,000	17,118,000
Puget Sound Power and Light	0.357	--- [c]	--- [c]	5,458[c]	3.536[c]	--- [c]	--- [c]	---	4,907,000
Wisconsin Power and Light	1.138	129,997	1.427	---	---	2,828	3.384	26,327,000	28,204,000

[a]Source: Form 423 printout.
[b]Source: Uniform Statistical Report for year ended December 31, 1980.
[c]Source: U.S. Department of Energy, Cost and Quality of Fuels for Electric Utility Plants-1980 Annual.

Exhibit II-1

A Tale of Two Minerals

Severance Taxes on Energy Resources in the United States

MALCOLM GILLIS

THE IMPLICATIONS for national energy aims of subnational severance taxes and other output-related levies on two energy resources, coal and uranium, are examined in this paper.[1] In the mountainous literature on energy taxation that has appeared since 1973, the focus has been largely upon oil and natural gas, while a relatively modest amount of published material has dealt with issues in coal and uranium taxes, particularly insofar as they might affect national energy goals. The marked emphasis upon taxes on oil and gas was not surprising, given that in the cases of these two substances national economic and military security has been perceived to be directly threatened, owing to heavy dependence on imports from sources of uncertain reliability. But for coal and uranium, no short-term threat was present since the nation has relied almost exclusively on domestic deposits of both. Indeed, until 1974, the Atomic Energy Commission prohibited the use of foreign uranium in U.S. commercial reactors.[2]

If relatively few studies have focused upon coal and uranium taxes, even fewer have devoted more than perfunctory attention to the assessment of the effects of output-related taxes on the provision of these two energy resources,[3] particularly in the context of national energy policy. There are perhaps two main reasons for this potentially significant omission. First, the federal government does not collect output-related taxes on uranium mining or, for that matter, on any nonfuel minerals. And for coal, the federal government did not levy any output-based taxes until October of 1977, when companies began paying small taxes on production, the proceeds of which are earmarked for reclamation of strip-mined coal sites.[4] Aside from the relatively minor federal taxes on coal production, taxes on uranium and coal are imposed exclusively by state and local governments in regions where these minerals are won, and are levied in such a variety of forms as virtually to defy description, much less coherent analysis. And as these subnational energy taxes have been thought to lie beyond the scope of federal influence, they have been little considered in the continuing national debate over federal energy policy.

Second, output taxes on coal and uranium have commonly been viewed as insignificant in any case, amounting to little more than minor tributes exacted by a few state and local governments. Indeed, in an influential study in 1974 by the Policy Study Group of the Massachusetts Institute of Technology Energy Laboratory, state and local taxes on coal were excluded from the analysis of coal costs, on grounds that they were "negligible on the whole."[5] While this judgment was likely a correct one in 1974, developments in state-local tax policy toward coal and uranium since that time have resulted in some significant new output-based taxes on both minerals, few of which appear to qualify as negligible. These developments are discussed in a subsequent section of this paper, following a brief discussion of major similarities and differences between circumstances affecting coal and uranium.

An effort to assess the implications of severance and related taxes for federal energy aims would ideally require a clear statement of what these aims happen to be. To be sure, Congress and the president did finally settle on several instruments of energy policy in the October 1978 compromise energy package. But this is not to say that consensus has at last been reached on the medium- and long-term objectives of federal energy policy. In particular, Congress and the executive have yet to agree upon the relative emphasis to be given to energy conservation efforts, on the one hand, and expansion of domestic energy supplies, on the other hand, nor upon the relative reliance to be placed on alternative energy sources. However, the broad outlines of a federal energy policy appear to be taking shape. Few would now go as far as to favor energy autarky of the type espoused earlier in this decade by the proponents of Project Independence. Nevertheless, a common theme of all serious discussions of future directions for national energy policy has been the need for placement of a substantial premium on efforts to encourage shifts from oil and natural gas to such domestic alternative energy sources as coal (the output of which President Carter apparently wants to double by 1985), solar energy, and, in the parlance of President Carter's campaign rhetoric,

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nuclear power as a "last resort." In this paper it is therefore assumed that whatever the final details of any federal energy package that is ultimately adopted, the major thrust on the supply side will be that of promoting heavier reliance on non-oil energy sources, but well short of self-sufficiency in energy supplies.

At the same time, both the federal government and subnational levels of government have indicated on numerous occasions (in legislation dealing with strip mining, in enactment of stringent safeguards on nuclear power facilities, and so on) serious concern with the present and potential social costs associated with coal and uranium extraction on the one hand and with the use of those fuels for power generation on the other. This suggests that a headlong federal rush to shift to these substances will be most unlikely and would in any case be constrained by environmental considerations. Finally, for the relevant future, a major influence on subnational tax policy toward coal and uranium may well be the extent to which state governments believe that heavier taxes on these substances can be exported to nonresidents of producing states, particularly nonresident consumers. The section on evaluation, presented later in this paper, assesses recent developments in subnational taxes on coal and uranium in light of the considerations mentioned above.

Similarities and Differences

Aside from the facts that coal and, to a lesser extent, uranium are commonly expected to provide a growing share of national energy resources over the next decade, and that neither is imported in significant quantities, the two substances have in recent years shared a number of common features and conditions, not only with respect to market outlook, but with regard to fiscal developments, environmental problems, and other relevant considerations. At the same time, there are enough significant differences between the characteristics of the two resources and the conditions affecting them to render difficult any common approach to understanding fiscal issues that involve both. The discussion of these similarities and differences in this section provides much of the basis for the evaluations presented in the final section of the paper.

Similarities

Rising rents and rent capture. Prices for both coal and uranium have risen substantially in recent years. For uranium, prices for immediate delivery had held at about $6.00 per pound of uranium concentrate (yellowcake)[6] from 1972 to early 1973, but had moved up to $7.00 per pound by midyear, following an unanticipated embargo on Australian uranium exports enacted by the Whitlam government. In addition, an international uranium cartel began its activities at about the same time. In the aftermath of the Organization of Petroleum Exporting Countries' price adjustment for crude oil in 1973 and 1974, prices of yellowcake for immediate delivery rose quickly to $15.00 per pound. Unit prices subsequently rose to levels in excess of $40.00 by 1976 and to $43.00 at the end of 1977. At the same time, long-term contract prices for future delivery began to move up beyond $20.00 a pound (delivery in 1979-82), and recent contracts for delivery in 1980-85 have involved prices above $40.00 per pound.[7] Thus, by 1978, it is not inaccurate to say that plans for future investment in nuclear power generating capacity are being geared to yellowcake prices that are more than seven times the level of nominal prices in 1973.

The market for coal has followed a roughly similar pattern, although price developments there have not been as dramatic as in the case of uranium. Average U.S. coal prices (f.o.b. mine) as reported by the industry rose from $7.66 per ton in 1972 and $8.53 per ton in 1973 to over $20.00 per ton by the end of 1976. However, as the U.S. figure is a national average for coals of all types mined under widely different circumstances, it may mask those aspects of coal market developments most relevant for discussions of energy taxation. Thus, it may be instructive to examine price behavior since 1973 for *steam coal* produced in one region of the country. In West Virginia, for example, coal prices averaged $11.39 per ton (f.o.b. mine) in 1973. By 1976, prices for West Virginia coal had increased almost threefold, to $31.25, with steam coal going for between $18.00 and $20.00 per ton, and metallurgical (coking) coal at prices two and sometimes three times as high.[8]

Available evidence indicates that it is most unlikely that mining costs have kept pace with prices for either uranium[9] or coal.[10] As a result, rents[11] in both industries have doubtless risen. Rather than allow these additional rents to remain wholly with owners of mineral rights, extractive firms, or union members (or all three groups), subnational units of government in the United States have enacted a variety of higher taxes on both minerals as the prime method of capturing a greater share of these rents for their respective treasuries. These measures are described in the next major section of the paper.

Unchanged federal tax treatment. While many state (as well as local) units of government in North America have followed aggressive strategies toward exactions on coal and uranium since 1973, federal taxes affecting both substances have remained basically unchanged. At the subnational level, justification for higher taxes on both has usually been couched largely in terms of revenue goals,[12] although in some cases higher severance

taxes on coal have been motivated by environmental concerns as well, as in Montana.[13] Federal *tax* policy toward both minerals does not appear to have been notably affected by either revenue or environmental considerations. Indeed, the lack of any significant changes in federal legislation might be largely explained by an apparent legislative consensus over the need to materially reduce dependence on imported oil, and the conviction that measures involving heavier taxes on coal or uranium would undermine this effort.

In any case, when Congress terminated in 1975 the 22 percent depletion allowance for petroleum and gas (except for small oil producers and regulated natural gas) it declined to abolish the allowance for either coal or uranium. Percentage depletion remains available for both minerals, at 22 percent for uranium and (at 10 percent) less than half as high for coal. The continued subsidy to both companies and private owners of mineral rights flowing from the percentage depletion allowance[14] for both substances has apparently been viewed as entirely consistent with policies for promoting a greater degree of energy independence. In fact, for those who view percentage depletion as an appropriate and cost-effective means of encouraging exploration for new deposits (a very doubtful proposition), the higher depletion rate for uranium relative to coal may be justified, given the markedly different reserve situation (discussed in a subsequent section) for the two substances.

However, prospects for continued availability of percentage depletion for uranium and coal have been clouded since the last week of the outgoing Republican administration in January 1977, when a major Treasury report included a proposal for elimination of percentage depletion in favor of cost depletion for all minerals.[15] In contrast to the state-local tax measures, the rationale for the Treasury proposal appeared to be based not on revenue arguments, but on the resource allocation grounds employed by neoclassical economists for more than two decades.[16] However, by April of 1978, neither the incumbent Democratic president (who did not make percentage depletion a major tax reform issue in his 1976 campaign) nor Congress had yet made any serious moves toward abolition of percentage depletion for hard minerals.

Environmental concerns. Enthusiasm for any shift toward heavier reliance on coal and uranium as energy resources may be expected to be greatly tempered by environmental, or social cost, considerations. Most concern over the social costs of energy from coal involves issues at the "front end" (extraction) and the midpoint (fuel use) segments of its fuel cycle, whereas concern over uranium centers largely on issues in the "back end" segment involving safety in disposal of nuclear wastes, recycling, and problems in limiting unauthorized use of fissionable by-products such as plutonium.

In the case of coal, externalities generated at the front end of the fuel cycle vary somewhat according to the regions where coal is extracted. In Appalachia, the major externalities associated with coal mining are environmental damages caused by strip mining on mountain slopes and hillsides[17] and the social costs of lung diseases arising from inhalation of dusts in underground mining.[18] In the major coal- and uranium-producing western states, most coal is mined by surface methods.[19] There, environmental concerns focus upon the problems of water scarcity and the very high costs of reclamation of mine sites, owing primarily to the arid climate of the region.

The social costs of coal use in the middle of its fuel cycle are well known, particularly those arising from sulphur emissions from coal-fired electrical generating stations. Sulphur dioxide, the most visible culprit, is known to have adverse effects on human and animal health, and on vegetation as well.[20] Attempts to deal with this externality have centered upon taxes on sulphur emission and imposition (by federal and subnational Environmental Protection Agencies) of air quality standards which compel power plants to burn low-sulphur coal.

Environmental concerns over the front end of the energy cycle for uranium also center on the effects of strip mining, which provides nearly two-thirds of U.S. uranium production. In addition, possible water table contamination from radioactive tailings dumps from mills is viewed as a serious issue in many western states. However, strip-mining issues for uranium have not drawn nearly the same amount of attention as for coal, since surface uranium deposits tend to be far smaller than coal deposits and involve earth-moving activity on a substantially smaller scale.[21] Further, few uranium deposits (other than some possible exceptions in Indonesia and Gabon) contain ores of grades high enough to give rise to problems of radiation poisoning for workers, even in underground mines. There are also social costs identified with uranium at the midpoint of its fuel cycle. Notwithstanding assurances from reputable scientists, the slight probability of nuclear accidents such as "melt-down" of reactors in use remains worrisome for many informed people. But the controversial issues revolving around the back-end segment of the energy cycle for uranium have been the source of very substantial anxiety in the scientific community and in the public at large. Concern centers upon two major problems: lack of proven methods for controlling the dangers of contamination from disposal of present, much less higher, levels of nuclear wastes, and the potential for diversion of nuclear energy materials for nonpeaceful purposes. While some specialists hold that the dangers of diversion of nuclear materials from present conventional reactors (but not

breeder reactors) may have been overstated,[22] few are inclined to dismiss the waste disposal problem as a figment of the public's imagination.[23]

The importance of being unimportant. The demand for both uranium and coal is largely a derived demand by intermediate industrial sectors, rather than final consumer demand. One determinant of the elasticity of market demand for any natural resource is the ratio of resource costs to total cost of the good or service of which the resource is a component. The lower is this ratio, the lower—other things being equal—will be demand elasticity for the resource.[24] Here again, the situation for coal is surprisingly similar to that of uranium. At first glance, the ratio of coal as a resource to total costs of coal as a fuel source would appear to be much higher than the corresponding figure for uranium, since coal is burned as coal, and uranium must undergo a lengthy and costly processing transformation from yellowcake to enriched uranium. In fact, costs incurred through the stage of uranium concentrates represent only about 30 percent of fuel costs in the full nuclear fuel cycle.[25] On this basis one might conclude that because uranium resource costs are a far smaller fraction of total fuel costs, demand elasticity for uranium would, other things being equal, tend to be lower than for coal. As explained in the final section of this paper, this consideration would, (given downward-sloping demand facing producers), imply greater scope for "exporting" taxes imposed by subnational governments on uranium, relative to those on coal. But such a conclusion would overlook two important considerations. First, severance and similar taxes are almost always imposed on the processed value (f.o.b.) of the resource at the mill (or washing plant), not on the delivered value. Second, transport costs for coal are typically a large multiple of coal costs f.o.b. mine, in some cases as much as four times f.o.b. mine costs, depending on distance and routing.[26]

Therefore, viewed properly, costs of coal (f.o.b. mine) as a proportion of fuel costs are no greater (and perhaps less in some cases) than for the comparable figure for uranium. For western coal delivered to Detroit, for example, resource costs in recent years were but 30 percent of delivered fuel costs, about the same as for uranium.

The future role of the western states. The western states, through their taxing and regulatory powers, will likely play an increasingly heavy role in determining the pace at which coal and uranium supplies can be expanded to meet national energy requirements. This is patently clear in the case of uranium, given the overwhelmingly large share of U.S. production and reserves contained in the Colorado Plateau, the Wyoming basin, and on the gulf coast of Texas. By itself, New Mexico accounts for 45 percent of U.S. production, followed by Wyoming with 30 percent.[27] Colorado, Texas, Utah, and Washington are responsible for the remaining 25 percent. For coal, states west of the Mississippi River accounted for only 13 percent and 20 percent of total U.S. production in 1973 and 1976 respectively. However, these states had nearly 55 percent of the demonstrated bituminous coal reserve base as of 1974.[28] Thus while the western states do not now dominate the market for coal, their potential for doing so in the future should not be discounted, particularly in the market for low-sulphur steam coal. Western steam coal is not only low-cost coal;[29] it is largely low-sulphur in content (less than 1 percent sulphur). In particular, the western states had in 1972 about 80 percent of total identified U.S. reserves of low-sulphur coal.[30] On the other hand, eastern coal is not only high-cost, but more than half of reserves are in the form of high-sulphur coal. Therefore, if we assume no significant relaxation of environmental restrictions in the use of high-sulphur coal in electric power generation, and given present and projected restrictions on strip mining in the East, any program involving a doubling of coal output by the mid-1980s will likely involve disproportionate expansion of western relative to eastern coal production from known reserves, provided that bottlenecks to expanded western coal mining are broken by that time.[31]

Governments in the main coal and uranium producing states (particularly New Mexico and Wyoming, which are important factors in both markets) have not been slow to perceive the possiblities of this situation and, as discussed in a later section, have already begun both to exact higher tribute on the two substances and to tighten the environmental terms under which they are exploited. Additional taxes enacted by these states will be higher, the greater the reliance they place on fiscal instruments (as opposed to regulatory policies) to achieve environmental objectives in coal and uranium mining. (Cf. Montana and coal.) Further, as argued below, severance taxes in the region will also tend to be higher, the more widespread is the perception among policymakers (and their advisors) that these taxes can be exported to nonresidents, particularly nonresident consumers.

Differences

Reserves and exploration. The reserve situation, and therefore potential exploration requirements, differs vastly between coal and uranium, particularly insofar as the United States is concerned. This consideration is relevant for energy tax policy at both the federal and subnational levels of government. In the case of coal, concern over the role of discovery in coal supply is

seldom if ever voiced. Rather, the important long-term problem for coal is typically viewed as the cost of production from known deposits.[32]

The situation for uranium is very different. Proven reserves of U_3O_8 contained in uranium deposits in 1976 have been estimated by the Energy Research and Development Administration (ERDA) at 640,000 tons, at a resource price of $30.00 per pound.[33] This figure appears large when set against present U.S. usage of about 15,000 tons per year. However, ERDA indicates that in the absence of a green light for plutonium recycling (not likely to occur given President Carter's "hold" decision of April 1977), U.S. demand alone is projected to reach 31,300 tons of yellowcake in 1980 and 45,900 tons in 1985.[34] But, unlike the case for coal, there is ample potential for strong foreign demand over the next two decades. Total worldwide demand exclusive of U.S. demand is projected at 24,000 tons in 1980 and nearly 100,000 tons in 1990, and consensus estimates indicate that Japan alone will have to import about 100,000 tons of yellowcake between 1977 and 1990.[35] While Canadian and African sources (and now, following 1977 decisions by the Fraser government, apparently Australian mines) will be able to satisfy some substantial portion of worldwide demand, American deposits will likely be called upon to furnish a sizable but unknown share.[36] In any case, many believe it will be necessary to quadruple the discovery rate just to meet U.S. demand through 1990.[37] If these projections are not grossly overblown, the question arises as to whether exploration may be expected to proceed at a pace that would allow production on a scale approaching estimated requirements. There are grounds for some doubt. While the exploration boom had not slackened in the U.S. Southwest by the end of 1977,[38] further exploration could well be restrained by a variety of federal policies including federal regulations on land use, water pollution, and clean air, quite apart from the potential dampening effects of state severance taxes discussed in the final section.

Much of the mineralized area of the western states lies in the public lands. For example, about 85 percent of Nevada's land area is owned by the federal government.[39] In recent years, new resource development on the public lands has been severely curtailed, in part due to restrictive provisions of the Water Pollution Control Act and the Clean Air Act. In any event, exploration activity on the public lands has, since the early 1970s, been well below previous levels.[40] With regard to federal tax policy, the continuance of the percentage depletion allowance for uranium is not at all certain, and abolition would likely have some dampening effect on exploration plans.

Price takers and price makers. A significant difference between the coal- and uranium-mining industries is that the former, but not the latter, is generally viewed as approximating competitive conditions. For coal, barriers to entry, primarily in the form of high capital requirements (particularly for underground mining) are indeed present, and many of the largest coal firms are affiliated with large oil and steel firms. Nevertheless, the universal assumption is still that the numerous firms in the industry are price takers.[41]

For uranium, there exists some significant scope for price-making behavior, both domestically and internationally. Not only was the industry in the United States fully protected against imports until 1974; it will remain partially protected until at least 1984, as previously discussed. Seven firms (three of which are major oil companies), which are responsible for 85 percent of production, dominate the U.S. market.[42] The presence of the oil majors adds to the oligopolistic patina of the industry, both nationally and internationally. In fact, oil companies control 40 percent of milling capacity, 50 percent of low-cost reserves in the United States, and 15 percent of total worldwide production.[43]

Finally, there does not seem to be much doubt that international cartelization of the industry in recent years has not only been feasible, but also a matter of record, even if participation of American producers has not yet been established.

Recent Changes in Severance Taxes

A complete survey of all subnational output taxes on coal and uranium mining would require an undertaking well beyond the scope of this paper. Rather, this section focuses only on those taxes peculiar to coal and uranium mining in important mining states, with emphasis on state-level taxes, particularly those enacted or altered since 1973. It should be noted that this review excludes consideration of a wide variety of subnational "property" taxes on mining, which in many states (Arizona, West Virginia) represent the most important tax on mining, and which often bear a resemblance to net, as opposed to gross, severance-type taxes.[44] But such taxes, certainly in the western states, are perhaps more akin to income than to severance taxes in most cases, and are primarily controlled by local units of government, numbering in the thousands.

Severance taxes on coal. Table 1 presents several taxes on coal in 12 jurisdictions, including all important coal-mining states except Pennsylvania and Illinois. In interpreting this table, one should note that some states with moderately low or small severance taxes at the state level (Arizona, Colorado) as well as others with relatively

TABLE 1. SEVERANCE TAXES ON COAL

State	Name of Tax	Base	Rate		Date of Latest Change
			Specific (Per Ton)	Ad Valorem (Percent)	
Western United States					
Arizona	Severance (formerly production)	Gross proceeds		2.50	1978
Colorado	Coal tonnage	Per ton	$0.007		
Idaho	License	Net proceeds		2.00	
Montana	License	Gross sales	Specific and ad valorem rates geared to Btu per pound. Rates for underground mining are substantially below those for surface mining, reaching a maximum of 4 percent of value for the former and 30 percent for the latter.		1975
New Mexico	Severance tax		$0.380 (steam coal) $0.180 (coking coal)		1977
	Resource excise			0.75	
	Surtax on coal		Indexed on severance tax[a]		To begin in 1978
North Dakota	Severance	Tons sold	$0.500 plus surtax geared to CPI[b]		1975
Wyoming	Mining excise	Gross value		4.00	
	Coal severance	Gross value		2.00	1978 -the tax is to expire once cumulative collections reach $120 million
Eastern United States					
Alabama	Severance	Tons mined	$0.135		1971
Kentucky	Severance	Gross value		4.50	1972
Ohio	Severance	Tons mined	$0.040		1971
Tennessee	Severance	Tons mined	$0.200		1974
West Virginia	Privilege	Gross value		3.50	
	Severance	Gross value		0.35	1975

Source: Tax information derived for Arizona, New Mexico, and West Virginia from mineral tax provisions of state laws. Montana and Wyoming data are from Gerald J. O'Neill, "Proposed Federal and Western State Mineral Tax Revisions" in *Non-Renewable Resource Taxation in the Western States*, Arizona College of Mines and the Lincoln Institute, Lincoln Institute Monograph no. 77-2 (Tucson, Ariz.: Lincoln Institute, 1977), p. 5. North Dakota, Alabama, Kentucky, Ohio, and Tennessee data are from Thomas Stinson, "State Taxation of Mineral Deposits and Production," prepared for the U.S. Environmental Protection Agency, Office of Research and Development (Washington, D.C.: Government Printing Office, 1977).

[a]The New Mexico coal surtax began on 1 July 1978 and increases each July thereafter. Surtax is computed by multiplying the dollar amount of the severance tax by a percentage equal to the percentage rise in the consumer price index (CPI) since calendar 1976.

[b]The North Dakota tax is levied on a minimum rate of $0.50 per ton, plus an additional 1 percent for each increase of 3 percentage points in the wholesale price index from the 1975 base.

high severance taxes (West Virginia, Montana, and Kentucky) also rely fairly heavily upon local property taxes to extract revenues from coal.[45] Nevertheless, at least in the western coal-mining regions, states with high (above 2.5 percent of gross value) severance taxes also tend to be those with the heaviest overall (state plus local) taxes on coal mining. For example, for surface coal mining, the western states with the highest percentages of overall taxes to revenues of mining firms [Montana (28.0 percent), Wyoming (9.7 percent), and Arizona (6.9 percent)] are also the states with the highest effective rates of severance tax.[46]

Table 1 provides an indication of the relative intensity with which the eastern and western state legislatures have been actively following a policy of rent capture since 1973. Four of the seven western states in the sample substantially increased severance taxes on coal after 1973, while in the same period, only two eastern states (West Virginia and Tennessee) enacted new state-level taxes on coal, and in both cases the increase was insubstantial, relative to measures adopted in western states.

Severance taxes on uranium. State legislators have, on the whole, been somewhat slower to seize opportunities for imposing higher severance taxes on uranium. In fact, only four of the six major producing states employ severance taxes on this mineral. Of this group, only New Mexico (with nearly half of U.S. reserves) has enacted substantial new levies on uranium since 1973 (see Table 2), and these taxes amount to but 5.8 percent of gross value of U_3O_8 at typical 1977 spot prices ($42.00 per pound).

Evaluation

At present rates of severance and related taxes on coal and uranium, it cannot be concluded that these levies have in general materially impaired federal energy aims, at least in the United States. Further, it is doubtful that existing state severance taxes have had nearly as much effect in retarding shifts away from reliance on oil as have the uncertainty and supply interruptions involved in coal strikes of as long as three and one-half months (1978), or continuing controversy over environmental effects of nuclear power. However, should many major producing states begin to follow the leads of Montana in coal, or New Mexico in uranium taxation, there may be ample potential for conflict between national energy policy as determined in Washington and regional tax policy as formulated in the state capitals, particularly in the Rocky Mountain region. Specifically, while heavier state taxes than now exist on both substances may not be at odds with evolving federal policies toward the environment, higher state levies may well postpone the realization of federal objectives for increased national energy independence through greater domestic supplies of coal and, to a lesser extent, uranium.

This section examines the factors that could lead to higher state severance taxes on these two energy resources and then proceeds to examine the likely effects of such action on future production of both. Finally, the last subsection evaluates the role of state taxes in controlling social costs of heavier reliance on coal and uranium.

Prospects for heavier state taxes on coal and uranium. There are a variety of factors that might induce state legislators and governors to enact higher taxes on extraction and processing of coal and uranium over the period 1978-90. Clearly, overall state fiscal requirements would influence such decisions, but projections of these needs would lie well beyond the scope of this paper. Another factor could be a fiscal "demonstration effect." That is, states such as Wyoming, Colorado, and Alabama, none of which have legislated significant new taxes on these substances in recent years, could be materially influenced by observation of tax trends in other important producing areas such as Montana and Alberta in coal and New Mexico and Saskatchewan in uranium. This type of reaction may have already been apparent in decisions made by New Mexico in 1977 (following enactment of heavy new uranium taxes in Saskatchewan in 1976)[47] and higher coal taxes in British Columbia in 1977 (following Montana and Alberta in 1975 and 1976).

But perhaps the most significant influence upon state taxes on these two substances will be the extent to which state government decision makers believe that further taxes can be "exported" to nonresidents, particularly consumers living in other states. To what extent will substantial exporting of such taxes be possible? Given that nearly 100 percent of known uranium reserves are concentrated in the western states, and given the rapidly growing national reliance upon the region for coal supplies, it would be useful to examine this question primarily from the perspective of the western states.

As a group, the western states export a high proportion of coal (in the form of coal or coal-fired electric power) and nearly all uranium mined within their borders.[48] Because of this pattern, and because of neglect of the determinants of state capacity to export taxes, there appears to be a widespread view within the region that virtually all taxes on these resources can be exported as well, largely to nonresident consumers.[49] That this impression has been common is evident not only in tax policy pronouncements of governments within the region,[50] but in anecdotal[51] and even many "theoretical"[52] articles that have recently been published on this topic.

TABLE 2. SEVERANCE TAXES ON URANIUM IN MAJOR PRODUCING REGIONS

State	Name of Tax	Base	Percentage Rate	Date of Latest Change	Remarks
Arizona	Severance	Gross value	2.5	1978	Tax was formerly called transactions privilege tax.
Colorado	No severance taxes on uranium. All taxes on this substance are collected by local governments employing property taxes.				Effective rates (tax as percent gross value) of local property taxes was 5.3 percent in 1976 (uranium only).
New Mexico	Severance	Taxes geared to contract prices of uranium concentrate (U_3O_8 per lb.)	Both specific and ad valorem rates. At prices prevailing in 1977, the rates were: $1.99/lb. for all yellowcake valued at more than $40, plus 12 percent of the excess over 40 percent.[a]	1977	
Texas	No severance taxes on uranium. Virtually all taxes on this substance are assessed by local governments (property tax).				Effective rate (tax as percent gross value) was 1.3 percent in 1976 (uranium only).
Utah	Mining occupation	Gross value	1.0	1972	Exemption of first $50,000 of sales per year.
Wyoming	Severance	Gross value of ore	2.0	. . .	Local taxes in the form of property taxes account for four times the level of state severance taxes on uranium.

Source: Arizona data are from state mining tax laws. New Mexico data are from Albert Church, University of New Mexico, Department of Economics. Texas data came from Gerald J. Boyle, "Taxation of Uranium and Steam Coal in the Western States" in *Non-Renewable Resource Taxation*, referenced in the source note for Table 1. Wyoming and Utah data are from Donald W. Gentry, "Financial Modeling of Mining Ventures: The Effects of State Mine Taxation" (Table 2) in *Non-Renewable Resource Taxation.*

[a]The full schedule for the new (1977) uranium tax in New Mexico is as follows:

Price per Pound of U_3O_8	Tax Rate
$ 0 - 5.00	1 percent
$ 5.00 - 7.50	5¢/lb. + 1.65% of excess over $5.00
$ 7.50 - 10.00	9¢/lb. + 2.00% of excess over $7.50
$10.00 - 15.00	14¢/lb. + 3.00% of excess over $10.00
$15.00 - 20.00	29¢/lb. + 4.00% of excess over $15.00
$20.00 - 25.00	49¢/lb. + 5.00% of excess over $20.00
$25.00 - 30.00	74¢/lb. + 7.00% of excess over $25.00
$30.00 - 40.00	$1.09/lb. + 9.00% of excess over $30.00
$40.00 - 50.00	$1.99/lb. + 12.00% of excess over $40.00
Over $50.00	$3.24/lb. + 12.50% of excess over $50.00

In the extensive literature on tax exporting that has developed over the last 15 years,[53] it has been well established that the ability of taxing jurisdictions to export taxes depends on a number of factors. Among these are factor mobility, industrial structure, the dominance (or lack of same) of the taxing jurisdiction in the relevant market for the taxed resource, and a variety of other important considerations including, where dominance obtains, elasticity of market demand for the taxed product. With the tools provided in this literature, it is a fairly simple task to show that the state taxes on natural resources may not always be shifted in part or in full to nonresidents, *even when* 100 percent of the resource is exported to other regions or countries. Rather, the burden may rest on local wage earners and nonresident capitalists. It may also be borne of resident or nonresident owners of property rights in mineral resources. But, in the case of severance or other production taxes, tax exporting will seldom take the form of full forward shifting to nonresident consumers. This would require in the first instance market dominance,[54] that is, a dominant position for the taxing jurisdiction in the relevant market for the resource.[55] Regardless of the elasticity of demand for the taxed product, nondominance implies a relatively elastic demand for the natural resource produced in the taxing jurisdiction and consequently only very limited (or zero) scope for exporting of taxes to nonresident consumers in either the short or long term.

Even when market dominance obtains, there should be no presumption of 100 percent shifting of severance taxes to nonresident consumers. In the short run (with factor immobility) *some* shifting to consumers of severance or other output-related taxes on dressed coal[56] or on U_3O_8 concentrates would be possible if the industrial structure in the resource industry were characterized by oligopoly, but only then if joint profits of the firms had not been previously maximized. And even in the longer run (with capital mobile), full forward shifting to consumers could occur only if the resource industry were perfectly competitive and characterized by constant costs. But for profit-maximizing monopolists or oligopolists, the most that could be shifted to nonresident consumers (assuming dominance) would be 50 percent of the tax on exported resources in the constant cost, linear demand curve case,[57] and even less when the resource industry is characterized by increasing costs.

To what extent does the situation for coal on the one hand and uranium on the other justify assumptions of substantial latitude for exporting of severance taxes to nonresidents of the major producing states, particularly nonresident consumers?[58]

In the case of coal, no single taxing jurisdiction occupies anything resembling a dominant position in the relevant market. Each jurisdiction by itself faces relatively elastic demand. Therefore, the possibilities of substantial exporting of severance taxes on coal exports to nonresident consumers would be exceedingly slim. Rather, in the short run, higher severance taxes would be borne by recipients of rents, in this case any quasi-rents accruing to labor and capital in the taxed industry, and resource rents received by owners of coal-mining rights. In the long run, such taxes would be largely borne by resource rents. Only to the extent that these quasi-rents and resource rents are received by out-of-state factor owners would any tax exportation take place. In particular, to the degree that such taxes reduced the profits of coal-mining firms with share ownership concentrated outside the taxing jurisdiction, a substantial share of severance taxes could of course be exported to nonresidents. But resident labor in the taxed industry could bear some of the burden as well, particularly if unionization in the industry has resulted in workers receiving wages above the competitive wage rate, as is particularly likely in such states as West Virginia, where 95 percent of the mines are unionized.

But what if, as has been seriously and repeatedly proposed, the major western coal producing states were to adopt, in cartel fashion, a common severance tax on coal,[59] with the aim of exporting higher taxes on this resource? Given the rapidly growing share of western coal in total production, and particularly the heavy concentration of low-sulphur coal reserves in the region, the western states as a group could possibly approach, by the mid-1980s, the necessary degree of dominance required for significant shifting of coal taxes to consumers in coal-importing regions. Further, the demand for Rocky Mountain coal is thought to be relatively inelastic, at near −0.5 in the short and long run.[60] This observation squares to some extent with one noted earlier, concerning one of the determinants of elasticity of market demand, specifically, the importance of being unimportant. That is, costs of coal f.o.b. mine are on the average a relatively small proportion of the total costs of using coal as a fuel. In such circumstances, and given the common parametric view of prices in the coal industry at large, it would seem possible that a cartel-type tax policy among the Rocky Mountain states could in the long run succeed in exporting substantial severance taxes on coal shipped to consumers outside the region,[61] if they were of a mind to do so,[62] and if they were willing to incur the formidable transactions costs involved in coordinating the severance tax policies of seven or eight states with highly diverse interests.

In the case of uranium, New Mexico and Wyoming could achieve partial dominance in the relevant market if they were to join together in a cartel arrangement, and dominance would be virtually complete if these two

states could induce all five of their uranium-producing brethren states to cooperate. However, the scope for full forward shifting of severance taxes to nonresidents would, contrary to widespread impressions, be even *less* under a uranium cartel than under a coal cartel, if either arrangement could be forged. To be sure, demand for uranium is not likely to be less inelastic than that for coal, particularly since uranium concentrates costs are no higher a proportion of energy costs than are the costs of dressed coal f.o.b. mine. But whereas the industrial structure in coal is, in a nationwide sense, one essentially involving price takers, the market for U_3O_8 is characterized by a substantially higher degree of concentration, with consequent greater scope for price-making activity. If it can be assumed that (in the constant cost case) the oligopolists in the industry do maximize their joint profits, then it would be expected that in the long run, a maximum of one-half of higher severance taxes on uranium could be passed on to nonresident consumers[63] with the rest being absorbed by resource and monopoly (oligopoly) rents.[64]

Formulation and implementation of a coordinated tax policy toward uranium would probably be less difficult than in the case of coal, since far fewer states would be involved and low-cost reserves are concentrated in two taxing jurisdictions (New Mexico and Wyoming) that could conceivably play essentially the same role of cartel "enforcer" as does Saudi Arabia in the Organization of Petroleum Exporting Countries (OPEC).

Whether there is sufficient convergence of interests and objectives among the several uranium states to allow a viable cartel is unknowable at present. But the considerations set forth in this discussion regarding both coal and uranium do indicate two things rather clearly. First, expectations by state government decision makers of full exporting of taxes on these resources (especially in the form of full forward shifting to out-of-state consumers) are not likely to be realized even under cartel-type arrangements between the states. Thus, state severance tax policy based on assumptions of 100 percent exporting of taxes on shipments of these two substances is founded more on wishful thinking than on economic reasoning. Second, it is no longer useful (if it ever was) to conduct discussions of national energy policy as if the taxing powers of subnational units of government could be perpetually held in *ceteris paribus*.

Effects of state severance-type taxes on future supplies of coal and uranium. At the beginning of this section it was noted that even after a spate of increases in severance taxes in many (but not all) producing states since 1973, there remains little basis for believing that at their present levels, severance taxes on coal and uranium would by themselves help thwart federal intentions to double coal supplies by the mid-1980s or to meet projected domestic demand for yellowcake by 1990. However, at much higher levels of severance taxes, there could be some additional grounds for pessimism on prospects for greater energy independence. That is, should many producing states follow Montana's lead on coal severance taxes, or should the major low-sulfur western coal production jurisdictions and the two dominant uranium states see fit to cooperate on higher regional severance taxes on these substances, there could be ample basis for concern.

At this point it is pertinent to ask why one might assume that future state-level tax increases on coal and uranium may likely take the form of higher severance taxes rather than, say, state corporation income taxes. Although any additional taxes on these two substances would, to some degree, impinge on future supplies of these minerals, it is typically assumed that income taxes would have less stifling effects. In particular, all of the major coal- and uranium-producing states except Wyoming already have corporation income taxes. Why would not state governments seek to capture a higher proportion of mineral rents through use of this instrument rather than severance taxes, especially given that mining industry officials tend, when faced with a choice, to strongly favor state income taxes (but not property taxes) over severance taxes?[65]

There are a variety of reasons why the severance tax is likely to be the preferred tool. First, state corporation income taxes are, relative to severance taxes (particularly those levied at specific rates), notably more difficult to administer when (as is the case with major coal- and uranium-mining firms) a corporation does business in more than one state.[66] This observation holds with double force in the case of income taxes on mining operations.[67] Second, few corporate taxes in major coal and uranium states are imposed at progressive rates,[68] and significant legal obstacles may stand in the way of efforts to differentiate state income taxes according to type of industry, precluding higher tax rates on mining enterprises. These considerations imply that, relative to ad valorem severance taxes, state corporate taxes may be less efficacious instruments for extracting rents resulting from higher coal and uranium prices, or will at least tend to be perceived to be so. Finally, compared to severance taxes, corporate income taxes on mining would, given the volatility of minerals prices, involve greater instability in tax revenues from the mining sector. This is a significant consideration in states such as Arizona where public expenditure budgets are heavily underwritten by mineral taxes.

The above comments, however, do serve to remind that in discussing the impact of severance taxes on supplies of coal and uranium, it is essential that the effects of these levies not be compared to a no-tax

situation. The relevant issues, insofar as this section is concerned, involve the differential effects of severance taxes on production, relative to other taxes of equal yield.[69]

Higher severance taxes on coal and uranium could impinge upon prospective supply in two principal ways. These are: first, by affecting mineral production from present capacity, and second, by their influence on decisions concerning investment in new capacity, not only in new deposits, but in development of existing deposits. To do justice to both issues would take this paper well beyond its intended scope, and into the still largely uncharted terrain of applications of the theory of the mine. This is not to say that the development of the literature on the theory of the mine has not been robust. On the contrary, this field has in recent years benefited from a number of important contributions,[70] with the result that the profession's capacity for coping with many complex issues in mineral economics has been vastly enhanced. However, it is not unfair to state that useful and relevant applications of the theory of the mine to fiscal issues in minerals have lagged well behind advances in the theory itself.[71] Further, and more centrally, a sizable share of what has been published on the effects of severance taxation on both extraction rates and investment in mining has been based on assumptions that may not be particularly appropriate for applied economic analysis of mines[72] or has been either patently incorrect[73] or the result of misapplications of economic theory.[74]

It is usually claimed that in the short run, with fixed capacity and constant prices, a severance tax will (relative to an income tax of equal yield) result in diminished production from currently worked deposits. This view is correct, due to the effect of the severance tax in inducing "high grading" of the ore body (by-passing of lower tenor ore that in the absence of a tax would have otherwise been mined).[75] High grading will tend to reduce mine output in either of two ways: by decreasing the life of the mine with sequence of extraction unaltered and/or by altering the sequence of extraction. The first effect occurs because the tax, like any component of mining cost, raises the cutoff grade at which extraction of ore is profitable. Thus, lower-grade ores that would otherwise have been extracted after high grades are taken are left unexploited on account of the tax. The second effect occurs in cases where technical factors prevent firms from sequencing their extraction according to ore quality,[76] but rather cause them to take some low-grade ore before taking higher-grade ones. Under these circumstances, a severance tax, especially one levied at specific rather than ad valorem rates, would tend to cause more low-grade ore to be bypassed, never to be recovered later.[77] A tax on net income (of a profit-maximizing firm) would have no such effect, as it would not affect the cutoff grade.

The output-stifling effects of severance taxes vis-a-vis income taxes are much less clear-cut in the longer run, when capacity is not fixed and all investment is not in place. On the one hand, a severance tax on uranium or coal will tend to depress total investment in mine development and beneficiation, thereby depressing output. For example, in the case of coal where working sections in known deposits are developed through time, it can be shown that both the severance tax (whether specific or ad valorem) and the income tax will shorten mine life and induce lower levels of output from given deposits. This is because both types of taxes will lower the net-of-tax return from developing marginal coal seams in a given mine, thereby reducing investment in extraction and dressing of coal and causing the firm to plan to bypass or otherwise reject sections that would have been exploited in the absence of taxation.[78]

The effects outlined just above refer to the effects of severance taxes on known deposits in existing mines. Severance taxes can (relative to income taxes) also reduce the volume of new investment in exploration for new deposits, a critical consideration in the case of uranium but of minor present importance for coal. The potential ramifications of severance-type taxes can best be illustrated by considering the implications for exploration in New Mexico had that state adopted the 25 percent tax on gross value of uranium that it seriously considered in 1976.

Under the usual form of income tax, exploration expenditures enter into the determination of taxable income either by amortization, or for some types of outlays, through expensing. Firms with greater levels of exploration activity will pay less taxes than otherwise similar firms with comparable production but lesser exploration outlays. Gross output taxes involve no such recognition of exploration costs. Firms that invest heavily in exploration will pay the same taxes as another firm with the same level of production but with no exploration expenditures. Thus, for a given amount of tax revenue, an income tax would be preferable to a gross output tax, insofar as exploration is concerned.[79] Should the earlier New Mexico proposal be resurrected, or should similar schemes involving very high rates of gross output rather than net income taxes be enacted by other producing states, it would not be unreasonable to expect some curtailment of exploration activity in the only region of the nation with significant proven and indicated uranium reserves. However, abolition of the federal percentage depletion allowance (a negative severance tax) would likely have rather greater impact on uranium exploration than any foreseeable increase in state severance taxes.

Severance taxes and environmental concerns in the fuel cycles for coal and uranium. While severance taxes may be reasonably utilized to help internalize some of the external costs in the fuel cycle for coal, such taxes would appear to have only a very marginal role to play in the case of uranium.

Some western states have already begun to use tax instruments to promote environmental objectives in the front end of the cycle for coal. Thus, in an attempt to avoid much of the social cost associated with surface mining, Montana's severance tax on coal employs a graduated rate scale involving very heavy (30 percent) taxes on gross value of most stripped coal, and significantly lighter (4 percent) taxes on underground mining.[80]

At the midpoint of the energy cycle for coal, severance-type taxes may not be expected to have any significant short-run impact upon reducing the social costs of sulphur emissions, except perhaps insofar as they are imposed at higher rates on high-sulphur coal, and only then if power-generating companies curtail purchases of such coal as a result of higher prices for same. But this would require substantial forward shifting of severance taxes on coal, a result that clearly cannot be taken for granted. And, in any case, major coal-producing states have apparently not yet considered severance taxes differentiated according to sulphur content.

For uranium, severance taxes could be used for environmental purposes in the same way as for coal, at the front end of the energy cycle. But no state has thus far adopted higher severance taxes on surface relative to underground mining of this mineral, and in any event relatively little attention has been directed toward social costs of uranium extraction. Rather, environmental concerns have, as noted earlier, been focused primarily upon back-end issues, particularly contamination from nuclear wastes and nuclear proliferation dangers arising from insecure disposal. Uranium taxes of the type reviewed in this paper cannot be expected to play any significant role in allaying this type of concern, as they are imposed at the very front end of the cycle. However, it might be worthwhile for state and local governments to begin considering some type of tax on nuclear wastes shunted to them, for example, a "reverse" severance tax on nuclear wastes buried in their respective taxing jurisdictions that could help internalize some of the external costs associated with the waste disposal problem.

FOOTNOTES

1. The author gratefully acknowledges helpful comments from several colleagues on an earlier version of this paper. But all commentators, including Bob Conrad, Glenn Jenkins, Bob Klitgaard, William Miernyk, and Carl Shoup are absolved from culpability in any errors that remain.

2. Even by 1977, U.S. utilities were allowed to use imported uranium as feed material for only 10 percent of their enrichment requirements. However, all such limits are scheduled to vanish by 1984, when no restrictions will be applied on imported feed. See *Mining Magazine*, October 1976, p. 355.

3. There are some recent exceptions. See, for example, University of Arizona College of Mines and the Lincoln Institute, *Non-Renewable Resource Taxation in the Western States* (Tucson, Ariz.: Lincoln Institute, 1977). See also Robert B. Shelton and William E. Morgan, "Resource Taxation, Tax Exportation, and Regional Energy Policies," *Natural Resources Journal*, vol. 17, no. 2 (April 1977), pp. 261-82.

4. The federal government, in its capacity as landowner, does collect royalties on the value and volume of coal and uranium mined on the public lands, most of which are concentrated in the western states. These royalties are not in the character of unrequired payments (taxes) but are fully analogous to payments made by extractive industries to any landowner holding property rights in minerals. However, it has been argued that coal leases granted by the federal government under the Federal Coal Leasing Program have been let on terms well below what a private landowner would charge. See J. L. Plummer, "The Federal Role in Rocky Mountain Energy Development," *Natural Resources Journal*, vol. 17, no. 2 (April 1977), p. 242.

5. Morris A. Adelman et al., "Energy Self-Sufficiency, an Economic Evaluation: Part 5, The Supply of Coal," *Technology Review*, vol. 76, no. 6 (May 1974), p. 38.

6. Yellowcake typically contains about 80 percent U_3O_8 (uranous uranyl oxide). In the United States, yellowcake is milled from uranium ore deposits of between 0.10 percent and 0.20 percent U_3O_8 content, but some deposits in Africa and Indonesia average over 1.5 percent U_3O_8 grade.

7. For a more detailed discussion of both the relationship between spot and long-term transactions in yellowcake, and the history of recent price trends in the market, see Malcolm Gillis, "Fiscal, Financial, and Related Provisions in Uranium Contracts," chapter 6 of Gillis et al., *The Indonesian Mining Sector, Tax and Related Policies* (Cambridge: Harvard Institute for International Development, 1978). Unless otherwise indicated, data and specialized technical information on uranium used in the present paper were drawn from this source.

8. Sources for coal prices: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook 1973*, vol. 1 (Washington, D.C.: Government Printing Office, 1975), p. 318 ff.; West Virginia Coal Association, *Coal Facts*, various issues; and Donald Hebb, tax analyst, West Virginia State Tax Department.

9. Between 1973 and 1976, average production costs for the existing mines of one major western uranium producer rose from $6.26 per pound to $9.10 per pound, while at the same time average

prices received rose from $7.33 per pound to $14.68 per pound. Thus, costs as a percent of price received declined from 85 percent in 1973 to 62 percent in 1976. (Gillis et al., op. cit., pp. 6-34.) However, other industry sources indicate much sharper cost increases in *new* uranium mines in the United States, as one source claims that production costs in new mines rose threefold from 1972 through 1976, from $12.00 per pound of contained U_3O_8 to $36.00. (*Engineering and Mining Journal*, August 1977, p. 92.)

10. One estimate placed total costs of western coal in 1973 at $2.51 per ton (f.o.b. mine) exclusive of royalty payments to deposit owners and net of state taxes. (Adelman et al., op. cit., p. 38.) At an average U.S. coal price of $8.42 per ton, f.o.b. mine, these deposits were generating substantial rents even before the onset of the "energy crisis."
11. The term *rent* is not one that may be used blithely in discussions of mineral taxation. Elsewhere, the author and a collaborator have stressed that mineral resource rents are much easier to describe than to identify and collect. [Malcolm Gillis and Meyer Bucovetsky, "The Design of Mineral Tax Policy," in Gillis et al., *Taxation and Mining: Nonfuel Minerals in Bolivia and Other Countries* (Cambridge, Mass.: Ballinger, 1978), chap. 7, p. 116.]
12. This was clearly the case in New Mexico. See Gerald J. Boyle, "Taxation of Uranium and Steam Coal in the Western States" in *Non-Renewable Resource Taxation*, pp. 1-32.
13. See Gerald J. O'Neill, "Proposed Federal and Western State Mineral Tax Revisions" in *Non-Renewable Resource Taxation in the Western States.* However, the Montana measures were also motivated partly out of a desire to finance a larger share of its general budget from taxes believed to be paid by nonresident coal consumers. See Plummer, op. cit., p. 254.
14. In the case of petroleum, Brannon and Davidson estimated that about half of the tax benefits from percentage depletion and expensing was dissipated in higher royalties to owners of mineral rights. Brannon concludes that it was questionable whether or not this remaining half increased reserves. See Gerard M. Brannon, "U.S. Taxes on Energy Resources," *American Economic Review*, vol. 65, no. 2 (May 1975), pp. 397-404. While the federal tax benefits from percentage depletion are higher for uranium than for coal, the reverse is true when we consider all tax benefits (including deduction of intangible drilling costs and mine development costs) available to producers. In 1974, Brannon estimated that the tax benefits expressed as a percentage of price of fuel delivered to an electric utility were 3.4 percent for coal and 2.8 percent for uranium. See ibid.
15. U.S. Treasury Department, *Blueprints for Basic Tax Reform* (Washington, D.C.: Government Printing Office, 1977).
16. One of the best treatments of the case for ending percentage depletion on grounds of the allocative waste it entails is still that provided by Harberger in his 1955 article, "The Taxation of Mineral Industries," reprinted in Arnold C. Harberger, *Taxation and Welfare* (Boston: Little, Brown, 1974).
17. Under the Surface Mining Control and Reclamation Act signed by President Carter in August 1977, operators of strip mines for coal pay a tax of $0.35 per ton, while deep-mine companies pay a tax of $0.15 per ton. The proceeds of the tax are to be used to finance reclamation efforts on some 1.1 million acres of strip-mined land abandoned by the coal industry. *New York Times*, 18 April 1978.
18. Of course, not all the costs arising from lung disease in underground mining are external costs. Utility-maximizing coal miners may be expected to cause (eventually) a significant share of these costs to be internalized to mining firms, through demands for higher wages in underground mining. But costs implicit in public hospital care for black-lung patients, for example, are not likely internalized and are properly labeled social costs.
19. By 1969, only 35 percent of U.S. coal was mined by surface methods. This proportion rose to about 50 percent in 1973 and, given rates of production growth in the western states (where 80 percent of the country's low-sulphur strippable coal is found) to perhaps 55 percent or 60 percent in 1977. See F. L. Liestritz and S. W. Voelker, "Coal Resource Ownership: Patterns, Problems, and Suggested Solutions," *Natural Resources Journal*, vol. 15, no. 4 (October 1975), p. 644.
20. For a thorough discussion of the nature of health hazards in sulphur dioxide emissions in one western coal-using area, see Susan B. Williams, "A Tax Program for the Navajo Tribe" (Harvard University Honors Thesis, Cambridge, Mass., 1977), chap. 5.
21. According to one source, reclamation of open-pit mining sites for uranium adds at present about two cents per pound to production costs for yellowcake. Central Intelligence Agency, *Nuclear Energy*, DOCEX Project, Library of Congress document ER-77-10468 (Washington, D.C.: Government Printing Office, 1977), p. 9. This represents less than 0.1 percent of production costs in most U.S. mines, far less than the corresponding percentage for western coal in 1974 (3 percent).
22. See D. J. Rose and R. K. Lester, "Nuclear Power, Nuclear Weapons and International Stability," *Scientific American*, vol. 238, no. 4 (April 1978), pp. 45-57.
23. The chairman of a National Academy of Sciences committee evaluating the merits and limitations of nuclear power believes that "no single aspect of nuclear power has excited so persistent a public concern as radioactive waste management." He goes on to say that "I would predict that should nuclear energy ultimately prove to be socially unacceptable, it will be primarily because of the public perception of the waste problem." Harvey Brooks, Pierce Professor of Technology and Public Policy, Harvard University, quoted in *Science* magazine, vol. 195, no. 4279 (18 February 1977), p. 661.
24. Resource costs as a percent of total costs of a finished mineral substance vary from as little as 8.5 percent (bauxite costs as a percent of costs of aluminum ingot) to as much as 71 percent (costs of copper concentrate as a percent of costs of ingot

copper). M. Turpin, "The Recent Development of Non-Ferrous Extractive Metallurgy," in United Nations, *The Economics of Mineral Engineering* (London: Mining Journal Books, Ltd., 1976), pp. 33-34.

25. Central Intelligence Agency, op. cit., p. 31.
26. For example, it has been estimated that at a rail rate of 7.5 mills per ton mile, transport costs for western coal delivered in Chicago in 1980 would be four times the f.o.b. mine price. For the same coal delivered in Philadelphia, the multiple would be more than six. (Adelman et al., p. 40.)
27. Gillis et al., *Taxation and Mining*, chap. 7, p. 334.
28. *Minerals Yearbook 1973*, vol. 1, pp. 321 and 324, and U.S. Department of Interior, Bureau of Mines, *Coal Data 1976* (Washington, D.C.: Government Printing Office), pp. ii-5.
29. Whereas *total* mine-mouth cost of western coal was estimated at $2.51 in 1973, eastern coal cost $4.50 per ton *exclusive* of labor costs, in that same year. But differentials in costs per million Btu are just as striking. For 1980, the M.I.T. Energy Laboratory projected mine-mouth cost of eastern coal at U.S. $0.53 per million Btu. This compares with projected costs of *delivered* western coal of $0.51 per million Btu in Chicago and $0.80 in Philadelphia (Adelman et al., op. cit., p. 40).
30. This figure was derived from Paul Averitt, "Coal" in U.S. Department of Interior, Bureau of Mines, *United States Mineral Resources*, Geological Survey Professional Paper no. 820 (Washington, D.C.: Government Printing Office, 1973), Tables 26 and 27.
31. In the mid-1970s, these bottlenecks included transportation (limitations on the supply of hopper cars and track), shortages in mining equipment, manpower (difficulties in attracting workers to thinly populated and isolated mining regions), and subnational government environmental legislation. See Adelman et al., op. cit., pp. 39-40.
32. See, for example, Martin B. Zimmerman, "Modeling Depletion in a Mineral Industry: The Case of Coal," *Bell Journal of Economics*, vol. 8, no. 1 (spring 1977), p. 57.
33. U.S. Energy Development Administration, "Statistical Data of the Uranium Industry," no. GJO-100-1976, mimeographed (Document of the U.S. Energy Development Administration, Grand Junction, Colo., 1976).
34. Emanuel Gordon, "Uranium—Rising Prices Continue to Spur Development Activity," *Engineering and Mining Journal*, vol. 178, no. 3 (March 1977), pp. 194-99.
35. Klaus-Peter Messer, "Uranium Demand as Judged by Electric Utilities," in Uranium Institute, *Uranium: Supply and Demand* (London: Mining Journal Books Ltd., 1977), p. 56.
36. Canada, Australia, and the United States account for 65 percent of uranium reserves outside of Communist countries. By 1985, Australia could probably satisfy, at most, only 16 percent of projected world demand. Canada's total production in 1984 is projected at only 12,500 tons, 16 percent of which will be required for domestic purposes. (H. B. Merlin, "Canada's Uranium Production Potential," and A. J. Grey, "Current Australian Uranium Position," in ibid., pp. 202 and 217.)
37. James Boyd, "United States Uranium Position" in ibid., p. 145.
38. *Engineering and Mining Journal*, vol. 179, no. 3 (March 1978), p. 23.
39. Malcolm Gillis, "Taxation, Mining and Public Ownership," in *Non-Renewable Resource Taxation.* The proportion of federally owned land to total land area in other western states is also elevated, ranging from nearly 2/3 in Utah and Idaho to about 1/3 in New Mexico and Colorado. In only one eastern state (New Hampshire) is the proportion greater than 10 percent.
40. Ibid., p. 1.
41. See, for example, H. Stuart Burness, "On the Taxation of Non-Replenishable Exhaustible Resources," mimeographed (University of Kentucky, Department of Economics, n.d.), pp. 5-6.
42. Central Intelligence Agency, op. cit., p. 29. It is also interesting to note that of the 15 largest coal mines in the United States, 4 are wholly or partially owned by major oil companies and 5 others are owned by large steel firms or public utilities. *Boston Globe*, 9 March 1978.
43. Bernard C. Duval, "The Changing Picture of Uranium Exploration," in Uranium Institute, op. cit., pp. 121-22. Duval (p. 123) also notes that U.S. firms are expanding overseas exploration activity in dramatic fashion. Total such outlays rose fivefold from 1975 to 1978, from $5.1 million to $29.1 million over that short period.
44. For example, Arizona imposes a property tax on mining in which the base is computed by deducting from gross value of production in the prior year all recognized costs in that year.
45. For example, effective rates (coal taxes as a percent of sales value) of *local* government taxes on steam coal are as high as 9.6 percent in some Arizona jurisdictions and reach 5.9 percent and 4.0 percent in Wyoming and Montana. (Boyle in *Non-Renewable Resource Taxation*, p. 3.) In Muhlenberg County, Kentucky, property taxes have recently been increased on Peabody Coal (the largest U.S. coal company) from as low as $5.00 per acre to $5,000 an acre on the firm's active mining land.
46. These figures are based on simulations on a hypothetical mine model by Donald W. Gentry, "Financial Modeling of Mining Ventures: The Effects of State Mine Taxation" in *Non-Renewable Resource Taxation*, pp. 20-35, for surface coal deposits of 100 million tons of subbituminous coal with 25-foot seams and an average of 70 feet of overburden, with annual production of 5 million tons per year. Tax liabilities were computed for tax laws prevailing for eight western states in 1976.
47. By contract, the *minimum* rate of *provincial* tax on Saskatchewan uranium extraction is 3 percent, with higher royalties ranging from a minimum of 5 percent to a maximum of 50 percent of presumed income, depending on the ratio of presumed income to capital investment. This heavy tax was moderated in effect by provision for a tax credit

equivalent to 35 percent of new exploration expenditures. Strictly speaking, the Saskatchewan graduated royalty is not one of the family of severance taxes, but may (like other taxes on presumed income elsewhere) be treated by firms as such. See Gillis, et. al., *Taxation and Mining*, chap. 7.

48. This is clearly a valid observation for uranium. It is only slightly less valid in the case of coal. See Shelton and Morgan, op. cit., p. 275.
49. For example, an influential advisor to the state government of New Mexico holds that "since all of New Mexico's U_3O_8 is exported, the tax would not be borne by residents of the state" and further argues that since only 15 percent of electricity is generated by New Mexico steam coal, "therefore 85 percent of the tax burden levied on steam coal is shifted to *consumers* outside the state." Boyle, in *Non-Renewable Resource Taxation*, pp. 25 and 27.
50. Cf. the Montana case discussed in Plummer, op. cit. This view was also predominant in Kentucky at the time of enactment of that state's severance tax on coal in 1972. See Burness, op. cit., p. 11.
51. Cf. Boyle, in *Non-Renewable Resource Taxation* and O'Neill in the same source, p. 7, and the rather breathless discussion by J. B. Sorenson and Rand Greenfield, "New Mexican Nationalism and the Evolution of Energy Policy in New Mexico," *Natural Resources Journal*, vol. 17, no. 2 (April 1977), especially pp. 287-92.
52. Stephen C. M. Long ["Coal Taxation in the Western States: The Need for a Regional Tax Policy," *Natural Resources Journal*, vol. 16, no. 2 (April 1976)] argues that Rocky Mountain severance taxes on the Btu content of coal "can be passed on to the buyer in the form of higher prices." Burness concludes that full forward shifting will occur if "contractual arrangements permit a severance tax to be passed on to the buyer" (op. cit., p. 32). Among economists in the western states, few have challenged the assumption of full forward shifting of natural resource taxes imposed by states in the region. One example may be found in a recent article by Shelton and Morgan, op. cit., but in this article even these writers assume that ability to export severance taxes on coal depends wholly on elasticity of demand facing the producers in the jurisdiction imposing the tax. They conclude that such states as Montana and Wyoming (with little intrastate coal consumption) would be able to "effectively use the severance tax to achieve tax exporting objectives" (pp. 280-81).
53. The first systematic treatment of this problem in the framework of modern incidence analysis was by Charles E. McLure, Jr., in a series of articles including "Interstate Exporting of State and Local Taxes: Estimates for 1962," *National Tax Journal*, vol. 20, no. 1 (March 1967), pp. 49-77 and "The Interregional Incidence of General Regional Taxes," *Public Finance*, vol. 24, no. 3 (1969), pp. 457-83. For applications in the natural resources area, see McLure, "The Economic Effects of a Texas Tax on the Processing of Petroleum Products," mimeographed (Rice University, Houston, Texas, February 1975) and Malcolm Gillis and Charles McLure, "The Incidence of World Taxes on Natural Resources," *American Economic Review*, vol. 65, no. 2 (May 1975), pp. 389-96.
54. See McLure, "The Economic Effects of a Texas Tax," in which it is concluded that, primarily owing to Texas' lack of dominance in oil refining, the likely outcome of a one-cent-per-gallon tax on refined petroleum production would probably be the destruction of the refining industry in the long run, with little likelihood of any shifting to consumers even in the short run.
55. The discussion in the next few paragraphs is based on the conceptual framework provided in Gillis and McLure, op. cit., and assumes throughout that labor in the taxed sector is geographically immobile.
56. Coal is not shipped from mine-mouth to user, but from washing plant to user. The amount of product coal obtained from the plant is a function not only of raw coal input but of sulphur and ash content as well. See Robert F. Conrad, "The Effects of Royalties and Income Taxes on the Development of Coal Mines: A Preliminary Analysis," mimeographed (Paper prepared for the Government of Canada, Department of Regional Economic Expansion, 1 July 1977), pp. 2-5.
57. For a theoretical discussion of this case, see Richard A. Musgrave, *The Theory of Public Finance* (New York: McGraw Hill, 1959), chap. 13.
58. Given that over the longer haul, all energy sources are substitutes for one another, a full-scale analysis of the prospects for exporting of severance taxes on either coal or uranium should take into account the effects of tax changes affecting these substitutes. However, in the interest of brevity, and in order to illustrate more starkly the nature of common misconceptions concerning the determinants of tax exporting, the subsequent discussion will view the effects of higher taxes, on coal on the one hand and uranium on the other, in isolation from future tax measures on substitute energy resources. The need to consider developments in the market for substitutes in discussions of tax exporting is emphasized in Charles E. McLure, Jr., "Economic Constraints on State and Local Taxation of Energy Resources," mimeographed (Paper presented at a Conference of the National Tax Association, Washington, D.C., 17-18 May 1978).
59. A case for such a proposal has been enthusiastically made by Long, op. cit., wistfully considered by Boyle in *Non-Renewable Resource Taxation*, and discussed by Shelton and Morgan, op. cit. Boyle rejects the idea only because of doubts as to the political feasibility of intergovernmental collusion on tax policy, while Shelton and Morgan conclude (p. 282) that any "taxing cartel agreements developed in the region are likely to be unstable."
60. Shelton and Morgan, op. cit., p. 280.
61. Of course, as Shelton and Morgan note, (op. cit., p. 275) some coal-producing states in the region export relatively small shares of the coal mined within their borders. Thus, a portion of any severance taxes on their coal output would, even under regional coal cartel tax arrangements, be borne by domestic consumers as well.
62. The history of interstate tax competition suggests

that any stable tax cartel would be most unlikely.

63. This point is, strangely, not recognized in much of the literature on tax exporting. For example, Long, op. cit., p. 428, affirms that the "exportability of taxes increases as the monopoly power of the mines increases."
64. In the case of uranium, an intriguing twist would be that the principal owner of mineral rights in the region and thus (potentially) the prime recipient of resource rents, would be the federal government. This is because of the fact that the public lands constitute such an elevated proportion of the mineralized area of many western states. (See footnote 39.)
65. One industry spokesman has identified a "fair and sound" system for state taxation of mineral properties as basically involving (a) elimination of severance taxes; and (b) state income taxes patterned after the federal tax code (with allowance of federal taxes as a deduction). C. J. Hansen, Vice President, Anaconda Company, "If Cabbages Were Kings—A Practical Approach to Taxation of Mining," in *Nonrenewable Resource Taxation*. The stated reasons for preferring income to severance taxes were: (i) the role of severance taxes in shortening mine life and in causing resource waste; (ii) the fact that unlike severance taxes, income taxes are due only when profits are present. To these factors might be added (iii) the greater ease with which firms may avoid income taxes through "transfer pricing devices"; and (iv) the fact that many state income taxes allow percentage depletion as a deduction, e.g., Colorado, Idaho, Montana, and New Mexico, among coal and uranium producers.
66. For a summary of the nature of the administrative problems of state corporate taxes, see James A. Maxwell and Richard Aronson, *Financing State and Local Governments*, 3rd ed. (Washington, D.C.: Brookings Institution, 1977), pp. 117-26.
67. For a discussion of the administrative difficulties particular to income taxation of mining operations, see Malcolm Gillis, Glenn Jenkins, Louis T. Wells, and Brian Wright, "Alternatives for Mineral Tax Reform," in *Taxation and Mining*, chap. 7, pp. 253-54 and 270-72.
68. In the major western mining states, only Arizona among the relevant states imposes a progressive-rate corporate income tax. Gentry, in *Non-Renewable Resource Taxation*, Table 3.
69. As this paper is primarily concerned with the implications of subnational severance taxes for national energy policy objectives involving heavier reliance on non-oil energy sources, this discussion does not focus upon all the welfare costs of severance and related taxes vis-a-vis other forms of mineral taxation. For a discussion of welfare cost issues for mining taxes, Gillis, Jenkins, Wells, and Wright in *Taxation and Mining*, pp. 223-34. See also Robert F. Conrad, "Royalties, Cyclical Prices, and the Theory of the Mine," mimeographed (University of Wisconsin, Madison, 1977), esp. pp. 11-12.
70. A fairly detailed listing of these contributions may be found in Malcolm Gillis, "Bibliography on Mineral Economics and Minerals Taxation," mimeographed (Harvard Institute for International Development, November 1976), pp. 1-18.
71. There are some notable exceptions. See Conrad, op. cit., as well as much of the work of Anthony Scott, including several articles in Scott, ed., *National Resources Revenues, A Test of Federalism* (Vancouver: U. of British Columbia Press, 1975).
72. Most of the best examples are based on assumptions involving constant (or steadily increasing) prices, uniform grade distribution, and perfect knowledge of both the former and of all present and potential reserves. One of the most familiar results of models using these assumptions is that rational miners will always extract lower-cost ores first, before moving to higher-cost (usually lower-grade) ores. But this is demonstrably not always so when ore is of multiple grades and prices are cyclical, as is the more usual case. (See Conrad, op. cit.)
73. See, for example, Thomas Stinson, "State Taxation of Mineral Deposits and Production," prepared for the U.S. Environmental Protection Agency, Office of Research and Development (Washington, D.C.: Environmental Protection Agency, Office of Research and Development, 1977), p. 7, where it is maintained that a severance tax is "more nearly in accord with the natural goal of maximizing resource use," since "the rate of extraction remains unchanged with respect to any change in the level of the tax."
74. For example, in an article untouched by the rich literature on optimal taxation, one writer claims, in a gross misuse of the economists' efficiency criterion, that a severance tax is the only tax on coal mining in the western states' region that would represent an "optimum tax" in the Pareto sense, where state-level indifference curves alone would be constructed to determine several "Pareto optimal" taxes from which a regional tax agency would choose. See Long, op. cit., pp. 440-41.
75. For an illustration in metallic minerals, see Conrad, Gillis, and Jenkins, "High-Grading in Metalliferous Ore Bodies: The Economist's Perspective," mimeographed (Harvard Institute for International Development, January 1977).
76. As, for example, in underground vein mining where ore occurs in broad veins with rich centers and diffused lower-grade ore on the edges. Here, a miner is faced with the choice of taking low-grade ore now, or (given the high costs involved in returning to widen the sides of a narrow cut) never.
77. Detailed discussion of both aspects of high grading can be found in Gillis, Jenkins, Wells, and Wright, in *Taxation and Mining*, pp. 224-29. Also, Conrad, op. cit., p. 11, shows that given fixed capacity and constant costs, an ad valorem severance tax will not affect output in mines with *uniformly* high grades. And, more relevant to the present discussion, an ad valorem severance tax will not reduce production over the life of the mine (it will affect timing of extraction) for high-quality, low-cost coal but would force extraction of medium-quality, high-cost and marginal coals to fall). However, specific-rate severance taxes (as in Alberta) on coal will not

only cause lower-quality coals to be bypassed, but will also depress output by decreasing the productivity of raw coal. [Robert F. Conrad, "The Effects of Royalties and Income Taxes on the Development of Coal Mines: A Preliminary Analysis," mimeographed (University of Wisconsin, Department of Economics, July 1977), p. 17.]

78. For a rigorous presentation of this point, see Conrad, "The Effects of Royalties and Income Taxes," pp. 17-21.

79. This statement is clearly correct in the case of current (undiscounted) tax revenues, but holds with less force for discounted revenues, especially if mines generate little taxable profit in the initial years of operation.

80. Concern over environmental damage from western strip mining of coal has not been confined to state legislatures. We may note the tax provisions of the 1977 Surface Mining Control and Reclamation Acts. In addition, as early as 1974, the House Interior Committee considered, but ultimately did not pass, a bill that would have created a $2.50 per ton tax on strip-mined western coal. Funds generated by the tax would have been used to finance reclamation efforts on stripped land. This tax would have *doubled* the cost of coal (f.o.b. mine-mouth). See Adelman et al., op. cit., p. 40.

Articles appearing in *Growth and Change* are indexed in the *Journal of Economic Literature; Current Contents; Urban Affairs Abstracts; ABC POL SCI (Advance Bibliography of Contents: Political Science and Government); Magazines for Libraries; Librarians' Handbook; Guide to Periodicals in Education; BIZ-DEX, A Publication of the Chase Manhattan Bank, N.A.; Combined Retrospective Index Sets; Economic Contents; United States Political Science Documents; Human Resources Abstracts; Sage Urban Studies Abstracts;* and *Sage Public Administration Abstracts.*

A Tale of Two Minerals

Severance Taxes on Energy Resources in the United States: Comment

CHARLES E. MCLURE, JR.

IN THIS PAPER Dr. Gillis provides important contributions in two areas on which I am not really able to add much: facts about the mining of coal and uranium and applications of the theory of the mine to the analysis of the effects of taxation on output from existing capacity and on exploration and development of new capacity. I want to restrict my remarks fairly closely to those parts of the paper dealing with matters I know better, and especially to the discussion of tax exporting and related questions. Even then I must admit at the outset that I am not going to find very much basically wrong with that discussion; since the paper draws heavily upon my previous joint work with the author, that can hardly be surprising. Rather, my remarks are based upon recognition that many of the assertions in the paper, while they may be clear and obvious to the economist accustomed to thinking about tax incidence, are likely to be counterintuitive to many of those vitally interested in the issue of tax exporting, including particularly policy makers in the state capitals. Thus my remarks are in large part an elaboration on and explanation of the theory of tax exporting—or the lack thereof—found in Dr. Gillis' paper.

A crucial element in the theory of tax exporting is the degree of dominance of the relevant market by the taxing jurisdiction or jurisdictions. If, for example, a state with only a tiny share of the national market for coal were to impose a severance tax on coal, it is highly unlikely that it would be able to export the tax to consumers in other states through higher prices for coal. Competition from coal mined in other states would prevent it. A far more likely result is that the tax would be borne by the owners of the firms extracting the coal (in the short run) or by owners of coal deposits (in the long run in which contracts are renegotiable). In either event the tax may be exported, but the mechanism of exporting is not what naive proponents of such severance taxes seem to have in mind; we return to this below.

If, on the other hand, a state that dominates the market for a given mineral were to impose a severance tax, the chances of exporting it to consumers are far greater. Or if all the jurisdictions in which a mineral is produced (including foreign ones, to the extent that they would otherwise break the dominance by taxing jurisdictions) were to impose a severance tax on coal, the likelihood of shifting to consumers via higher prices is far greater than if one state supplying an insignificant amount of the taxed mineral decides to "go it alone." In short, when one asks whether a given state can export a tax on minerals, the question must be specified more closely: if the state does not dominate the market for the mineral, is it acting alone or in concert with other states in imposing the tax? Incredible though it may seem, this distinction is made all too seldom.

The observant listener will have noticed a flaw—or at least an ambiguity—in the argument just presented. Initially I referred to dominance of "the relevant market," and then slipped into references to coal and a given mineral. If that given mineral had been industrial diamonds, for which there may be few good substitutes, the argument would need little modification. But the reference to coal is open to criticism—as, to some extent, is Dr. Gillis' dual discussion of dominance of the markets for coal and uranium. Coal and uranium are, after all, to some extent potential substitutes for each other and for petroleum. This is, as Dr. Gillis implicitly assumes, the premise underlying the federal energy policy which would have the United States reducing its relative reliance on petroleum. But once this is recognized, dominance of either the market for coal or the market for uranium, considered individually, may be of little relevance for incidence analysis. Certainly in the long run, in which it is likely that technological advances will make coal, nuclear power, solar energy, and perhaps other sources of energy substitutes, with the one chosen for a particular application depending largely on price, dominance of the market for coal or uranium would be largely irrelevant. This consideration does not, of course, change the theory of incidence and tax exporting; it just means that one must be careful in applying that theory.

Combining the points just made about dominance, one can produce the combinations shown in Table 1. If a state goes it alone to tax a fuel which has close substitutes (row 1), it clearly does not dominate the relevant market and cannot shift the tax to nonresident

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TABLE 1. ANALYSIS OF MARKET DOMINANCE FOR TAX EXPORTING

Case	States Levying Tax	Fuel Subject to Tax	Existence of Dominance
1	one	one	no
2	one	all	no
3	all	one	no
4	all	all	yes

consumers. Even if the state dominates the market for one fuel or if all states collude to tax the fuel, the tax will not be shifted, so long as untaxed substitutes for the fuel are available at competitive prices (rows 2 and 3). Only if all states (or enough of them to form an effective cartel) tax all close substitute fuels (row 4) can we be confident that dominance is sufficient for shifting to consumers to occur.

Note, finally, that things are not always what they appear to the untrained eye to be. Suppose that states accounting for 95 percent of the output for a mineral with no close substitutes were to raise their taxes on that mineral, and that the tax increase was reflected in higher prices for the taxed mineral. This does not mean that the states accounting for the remaining 5 percent of output should assume that they could export a similar tax to nonresident consumers. Rather, the proper line of reasoning goes as follows: when the first tax increase raised the price in the national market, it created a price umbrella which allowed producers of the 5 percent of output on which taxes had not been raised to raise prices and realize additional economic rents. But increased taxation of the remaining 5 percent of output would not allow a further significant increase in price. Instead, it would simply appropriate for the state the increment in rents created by the initial tax increase. This example is of more than academic interest, since it describes what has happened in the market for fuels since 1973. Consumers are, indeed, paying higher prices on petroleum products and other fuels than earlier, due to the actions of the Organization of Petroleum Exporting Countries (OPEC). One of the results has been increased rents for owners of fuel resources. But the result of higher state taxes on fuels is likely to be reduced economic rents, not higher prices.

Given this theoretical background, what, we might ask, are the facts? Can Montana export a tax on coal? Can New Mexico export a tax on uranium? Can the western states acting in concert export a tax on coal? On uranium? In virtually all of these cases the answers would seem to be the same: it may be possible to export the tax, but it is not likely to be the nonresident consumer who pays. And in some cases it may very well be residents, but not consumers, who pay the tax. Though this conclusion is essentially what Dr. Gillis has said, let me elaborate a bit further.

It would seem unlikely that Montana or any other state could export a tax on coal to consumers, since, even within the narrow market for coal, the requisite market dominance simply is not there. Wyoming and New Mexico might do somewhat better in exporting a tax on uranium, especially if they acted in concert. But it seems that nuclear power is subject to enough competition to make even this outcome unlikely, and the same reasoning applies to taxes levied individually on either coal or uranium by all of the western states—or indeed by all of the states producing either mineral. Only if all states producing significant quantities of either mineral levied comparable taxes on both would shifting to consumers be really likely. And even then it would be necessary to take account of competitive fuels.[1] A far more likely result, as noted above and in Dr. Gillis' paper, is a burden falling on firms owning or extracting the mineral.[2]

In short, it seems rather unlikely that state taxes on minerals will be exported to consumers. A more likely result in all but rare cases would seem to be exporting to owners or extracters of minerals. In this sense it seems that those who have thought of tax exporting with a gleam in their eyes have generally concentrated on the wrong side of the market. This conclusion probably will not be accepted too warmly in the mineral-producing states, where the desire to export taxes seems to be just the fiscal side of the "let them freeze in the dark" mentality. But while I can understand the desire to export taxes, I have difficulty understanding the strength of the desire to export them to nonresident *consumers*. I would have thought that exporting to nonresident coal companies would do quite nicely! But of course, the coal might not be owned by nonresidents. This possibility suggests that we really need better empirical evidence on the degree of exporting of taxes on minerals. In particular, someone needs to do a careful analysis of just who owns the property rights that are being compromised when mineral taxes are imposed or raised.

Two final comments must be made about the relevance of the analysis of tax exporting presented in the Gillis paper. First, the analysis may be more or less irrelevant as a determinant of whether federal energy policies are met. For as Gillis has said, "perhaps the most significant influence upon state taxes on these two substances will be the extent to which state government decision makers believe that future taxes can be 'exported' to nonresidents, particularly consumers living in other states."[3] Regardless of what economic analysis suggests to be the likely result of a tax on coal or uranium, legislators will presumably base their votes on what they think the result will be. Casual observation

indicates that exporting to consumers is the generally presumed outcome.

Second, to the extent that taxes are really levied to compensate for social costs, as the structure of the Montana taxes on coal suggests may be the case in at least one instance, one cannot get too excited about whether the tax is exported. After all, producers should be charged for these social costs just as they pay for the costs of labor, capital, and such government services as postal delivery. Whether this particular increase in cost can be passed on to consumers, as seems unlikely for the reasons outlined in the Gillis paper and above, or must be absorbed from rents, as seems more likely, is clearly an interesting question, especially to those affected. But I would be content from an equity and allocational point of view to live with the result of the market if I were confident that the tax was reasonably structured.

FOOTNOTES

1. This conclusion is based on the premise that competition from alternative fuels is allowed to be determined by market forces. To the extent that federal policy rules out certain avenues of competition, e.g., in the use of natural gas in generating electricity, this premise is false. Of course, natural gas could presently be competitive with coal only because of prior interference with market forces through rate regulation.
2. There may be a tendency to believe that a tax levied now on coal and uranium will soon come to be exported, since we will soon run out of competitive fuels such as petroleum. Even this proposition seems to be of questionable validity. An equally likely result would seem to be capitalization of the tax in the form of lower royalties for whoever owns the resource at the time the tax is imposed.
3. Gillis, page 61 of this issue.

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ECONOMIC CONSTRAINTS ON STATE AND LOCAL TAXATION OF ENERGY RESOURCES

CHARLES E. McLURE, JR.

IT seems likely that many state and local governments may have two non-revenue objectives in mind when they frame policy for the taxation of the production of energy resources: the appropriation of economic rents and the exporting of taxes.[1] We shall see below that whether intended or not, these two objectives are likely to be quite closely related and to be achieved simultaneously. But to the extent that this is true, the exporting of taxes is likely to be to producers, and in particular to those who would otherwise realize economic rents, and not to consumers, as is commonly expected.

In Section I, I review briefly the theoretical analysis of the ability of state and local governments to export taxes. Then in Section II I apply that analysis to a particular case of attempted tax exporting, a proposed tax on the processing of petroleum products in Texas. It will be seen that in the short run a substantial proportion of such a tax could indeed be exported, though not to consumers. The more likely long-run result is the exporting of the Texas refinery industry, rather than the tax.

The result can be quite different if the tax is levied upon the extraction of crude petroleum, rather than upon its processing. The analogous difference between the incidence of a tax on coal and a tax on coal gasification or the generation of electricity is noted briefly in Section III.

I. The Theory of Tax Exporting[2]

An important determinant of the ability of a political jurisdiction to export its taxes is the degree of dominance of the relevant market by the taxing jurisdiction. It is unlikely that a state with only a small share of the national market for a given natural resource would be able to export a severance tax on that resource to consumers in other states through higher prices for the resource. It would be prevented from doing so by competition from untaxed suppliers in other states. It is far more likely that the tax would be borne in the short run by the owners of the firms extracting the resource and in the long run, when contracts are renegotiable, by owners of deposits of the resource.[3] If the owners of the firms in the industry or the owners of the resource deposits happened to be nonresidents of the taxing jurisdiction, the tax could very well be exported, but the exporting would not be to consumers, as commonly expected.

Suppose on the other hand that a state which dominates the market for a given resource were to impose a severance tax. In such a case, the chances of exporting to consumers are far greater. Similarly, if jurisdictions responsible for most of the output of the resource were to agree to impose a uniform severance tax on the resource, the likelihood of shifting to consumers via higher prices would be far greater than if one state accounting for a small fraction of output were to act unilaterally.[4] Thus the first question that must be asked in attempting to determine whether or not a state can export a tax on an energy resource is the extent to which that state, by itself or together with other states with which it is acting in concert in tax policy, dominates the relevant market for the resource. In the absence of domination, the elasticity of demand facing the taxing jurisdiction is simply too great to allow a substantial amount of the tax to be exported to consumers.[5]

Of course, it is necessary for shifting of the tax to consumers that the state dominate the market for the resource, but dominance is not sufficient. Quite independently of the level of domination of the particular narrowly defined market, it is necessary that the demand for the energy resource in question be fairly inelastic. Since the demands for most natural resources are for inputs into other products, the demand is, in large part, a

derived demand and the theory of derived demand described by Marshall and elaborated by Hicks is relevant. In particular, the demand for the taxed resource will be less elastic: the lower is the elasticity of the demand for the products which it is used to produce, the smaller the resource cost is as a percentage of the total cost of the final product, and the more difficult it is to substitute for the taxed resource. Because it is related to the question of dominance of the relevant market—and in fact to the definition of the relevant market—it is worthwhile to say a bit more about the last of these considerations.

Even if a state completely dominates the market for an energy resource that it intends to tax, the state cannot expect that the tax will be shifted to nonresident consumers so long as there are suitable substitutes for the taxed substance. (To take an extreme case, Montana dominates the market for Montana coal; but Montana coal faces vigorous competition from Wyoming coal, which is virtually a perfect substitute.) Thus, for example, if one is analyzing the chances of exporting a tax levied on uranium in one or a few states which dominate the market for uranium, one must consider competition from such fossil fuels as coal and petroleum and from such unconventional sources as solar energy.[6] Similarly, aluminum has ready substitutes in the market for containers. On the other hand, it has qualities which would make it very difficult to replace in such applications as air transportation.[7]

The mobility of productive factors is another important determinant of the ability of state and local governments to export taxes on energy resources. Any productive factor, including a natural resource, is more likely to bear the burden of a tax if it is immobile than if it can escape the tax collector's net by changing either its location or its use. Whether labor is mobile or not is likely to depend on such factors as training, tradition, and the availability of alternative employment outside the natural resource industry and upon the extent of unionization in the industry. Natural resources are, in their natural state, perhaps the least mobile resources of all. Certainly, extraction of resources cannot very well be moved from jurisdiction to jurisdiction in order to escape the tax collector. But under particular circumstances, such as those to be described below, processing of resources can be quite mobile.

Given the fluidity of American capital markets, it can generally be expected that capital is extremely mobile between states and industries, at least in the long run. In the short run capital is effectively immobile between industries, but in some instances may be mobile geographically. So while investment may be fixed and earning quasi-rents in the short run, when seen from an industry point of view, when seen from the viewpoint of a given state this characterization may be inaccurate.

A final consideration that is often overlooked—or even seen backwards—in discussions of tax exporting is the industrial structure of the market. It is generally assumed that the more concentrated the industry is, the more likely that the firms in the industry can use their market power to shift a tax on the natural resource they produce to consumers. While there is substantial truth to this supposition, it can easily be carried too far. This is most easily seen in the case of complete market dominance by one firm. A standard textbook result is that a monopolist can shift to consumers only about one-half as much of a tax as would be shifted to consumers by a competitive industry in similar circumstances.[8] The remaining half of the tax simply reduces the monopoly profits of the firm. Since there are few cases in which the domination by one firm is complete, even in the natural resources field, the direct relevance of this theorem may be fairly limited. But it is equally applicable in cases in which a small number of oligopolistic firms so dominate an industry that they are able to maximize their joint profits. Only in cases in which there is enough concentration to create interdependent behavior, perhaps through conscious parallelism, but not joint profit maximization, is a tax levied on an oligopolistic industry more likely to be shifted forward than is a tax on a competitive industry.

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II. A Texas Refining Tax[9]

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nants of the ability to export taxes that the likely outcome in a given case can be determined only from an examination of the facts. But even the most casual analysis would suggest that it would be extremely rare that a high proportion of any tax on energy resources levied by only one state would be shifted to consumers. A far more likely result is that the tax would be borne by owners of capital in the short run and by owners of the resource in the long run. Depending upon the pattern of ownership of the capital or the energy resources, the tax may, nonetheless, be exported to nonresidents. And indeed, many state legislatures and voters might find this a satisfactory outcome. While the desire to export taxes to consumers that is the fiscal embodiment of the "let them freeze in the dark" viewpoint that is so prevalent in the producing states is usually interpreted as a desire to export taxes to consumers, it is not at all obvious why fiscal exporting to nonresident recipients of economic rents resulting from the exploitation of energy resources would not be equally satisfactory. But this conclusion must be qualified in at least two ways. First, ownership of resources may be substantially more concentrated among residents of the taxing state than is consumption. Thus shifting to consumers may be vastly preferable to residents of the taxing state to incidence on economic rents. Second, with the passage of time capital that was initially captive in the taxing state at the time of the imposition of the tax will become geographically mobile. As this occurs, not only will the burden of the tax tend to be shifted from owners of capital to owners of energy resources. In addition, jobs may very well be exported.

II. A Texas Refining Tax[9]

At various times over the years it has been proposed that Texas should levy a tax on the refining of petroleum products. Under one such recent proposal a tax of one cent per gallon would have been levied on each gallon of gasoline and diesel fuel refined in the state; liquefied petroleum gas, commercial solvents, naphthas, and raw petroleum products and petrochemical intermediates would have been exempt from the tax. It seems likely that those who propose such taxes expect that they could be exported in large part to consumers living outside Texas. This expectation can probably be traced to the dominant position Texas once enjoyed in the national market for petroleum products. More recent interest in such a tax is probably based upon the desire to capture for the state some of the potential windfall profits generated by the increase in crude oil prices set by the Organization of Petroleum Exporting Countries (OPEC).

In this section I want to consider the likelihood that a tax on the processing of petroleum products in Texas would be shifted to consumers in other states. I consider both the relatively short-run situation in which refining capacity is essentially fixed, in Texas and elsewhere, and the long-run situation in which the location of additional capacity and even replacement and maintenance of existing capacity is within the discretion of private investors. The expectation of substantial tax exporting to nonresident consumers is seen to be totally unfounded in the long run and of doubtful validity even in the short run. In the short run, the tax is likely to be borne by the firms owning refineries in Texas. The more likely long-run outcome, which will begin even in the short run, is the eventual destruction of the refining industry in Texas.

Though it has been traditional to think of Texas as dominating the national market for crude oil and petroleum products, the recent actions of OPEC should be evidence enough that Texas no longer dominates those markets. At present Texas accounts for only about one-fourth of the nation's refining capacity, and this percentage has been falling as investment in other states has outstripped that within Texas. In the other Gulf Coast and lower Atlantic states most likely to compete effectively with Texas, refining capacity has grown by about six and one-half percent per year since 1960, or more than twice the rate of growth in Texas. Even more important, Texas now accounts for only about 15 percent of refinery capacity

in the western hemisphere and six to seven percent of free-world refinery capacity. It certainly does not appear that Texas now enjoys the market dominance necessary to shift a refining tax to consumers, if ever it did.[10]

In Section I the mobility of a taxed resource was seen to be an important determinant of the ability to export a tax on the resource. At one time it may have been reasonable to think of refining as being tied fairly closely to the area in which crude oil is produced. Economies of scale in refining would dictate location of refineries near sources of crude supply, rather than near all but the largest markets. But the growth of markets and developments in transportation technology and investments in pipelines, tankers, and barges have made the refining industry relatively "foot-loose." Since the differential cost of transporting crude oil and refined products is negligible, it makes relatively little difference whether refining occurs near the source of crude, near markets, or at intermediate points. This is especially true since Texas refineries rely increasingly on foreign crude. Thus taxes of 20 to 30 cents per barrel of crude throughput could easily dominate any unfavorable differential transportation costs in the short-run decision of where to refine a given quantity of crude oil and would reinforce any long-term decision to locate new refineries or expand existing ones at sites closer to markets because of transportation savings. In the short run Texas refineries would be used only as a last resort, that is only if those located elsewhere were operating at capacity. It might generally be preferable to refine crude outside the country and import refined products, rather than import crude to be refined in Texas where it would be subject to the Texas tax. And given the magnitude of the tax sometimes contemplated, it might even be economical to ship Texas crude to off-shore refineries, say in Mexico, Puerto Rico, Jamaica, etc., and then reimport it (even to Texas) instead of refining it in Texas. In short, it appears that crude oil is sufficiently mobile that efforts to shift the refining tax to either consumers or owners of crude reserves are doomed to failure.

Finally, it should be noted that it is very unlikely that collusion by the oil-producing states would produce sufficient market dominance for the Texas tax on refining to be shifted forward to consumers. First, gaining the cooperation of all the oil-producing states would be difficult. More to the point, the tax would be levied on refining and not on production. Thus it would be necessary to gain the cooperation of all states in which refineries are located or could economically be located. This consideration plus the historical inability of cartels containing many members to survive suggests that cooperative action among enough states to make a cartel stable and effective seems so remote as to deserve no further attention. And even if that were not the case, there seems to be no chance of gaining the acquiescence of other countries, or even territories such as Puerto Rico, to the cooperative action necessary to assure the forward shifting of a Texas tax on refining.

Though refining is highly capital-intensive, some 40,000 persons are employed in the refining of petroleum products in Texas. It does not seem unreasonable to believe that this many workers, or even more, would be affected in the long run (within, say, 15 to 20 years) by a Texas tax on refining, especially when we consider induced effects on ancillary industries such as petrochemicals, utilities, transportation, and services.[11] These effects would be most severe in the Gulf Coast region near Houston where most of the state's refining capacity is located and where competition from outside refiners would be the most fierce.

Texas workers would feel the effect of the tax even if the labor released from refining were to be absorbed in other activities, with little increase in the unemployment rate in Texas, because it is unlikely that the displaced workers could be absorbed without a reduction in the wage rate. We can obtain a rough idea of how wages would be affected by assuming a state-wide elasticity of demand for

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labor of unity. If labor supply in the state is more or less independent of the wage rate, direct and induced effects on the demand for labor generated by a refining tax would reduce wages by about one and a half to two percent in the long run, relative to what they might otherwise be. Thus while the major impact of the refining tax would clearly be on owners of refineries, especially in the short run, it would be a mistake to believe that labor and land-owners had no stake in the issue. Moreover, the tax would not affect only workers in refining and related industries. Competitive forces would spread the effect to many workers and throughout the state.

The options available to, and the constraints upon, policy makers in Texas should now be fairly clear. In the short run there is some chance of exporting a substantial amount of a tax on refining in Texas to nonresidents of that state, but most of the exporting would be to nonresident owners of Texas refineries. There is little chance that the tax would simply be shifted forward to nonresident consumers of petroleum products refined in Texas, as some naive observers apparently believe, or to producers of crude oil. Competition from refineries located in other states would assure that. Finally, much of the tax would be borne by resident owners of refineries.

It is reasonable to believe that many Texans would not object to a tax that reduced the profits of nonresident owners of refineries and they might not even mind reducing the profits of resident refiners. But the long-run effects are likely to be quite different from those just described and probably much less acceptable to most Texans. Runs to refineries would be shifted from Texas to other states, even in the short run, to the extent that excess capacity allowed. In the long run investment in Texas refineries would be curtailed. As this occurred, Texas would lose both employment opportunities and a substantial portion of its tax base. Thus while the refining tax might be largely exported in the short run, in the long run it would bear heavily upon Texas citizens. And because of the tax-induced outflow of refining capital the tax revenue would not even turn out to be as great as it might appear to the casual observer. The policy option, then, involves weighing the short-run benefits of exporting some taxes to nonresident owners of refineries against the long-run costs of rendering Texas unattractive to the refining industry. There seems to be almost no chance of both exporting the tax in the short run and maintaining Texas' share of the refining industry in the long run.

III. Extraction Versus Processing

The observant reader might have noticed that whereas Section I dealt implicitly primarily with taxes on the *extraction* of energy resources, Section II analyzed the *processing* of a resource. Of course, the basic theory is the same in the two cases. But the conditions, and therefore the conclusions, are likely to be different to the extent that the tax under examination is on the extraction, rather than the processing, of a resource. That is, while it is not inevitable that extraction generates large economic rents, it certainly seems likely that rents are generally greater in extraction than in processing. This being the case taxes on extraction are more likely to be borne by recipients of economic rents and have little effect on output, whereas heavy taxes on processing—a form of manufacturing—can be expected to have devastating effects on output.[12]

Application of this reasoning to the taxation of petroleum in Texas is straightforward; whereas the refining tax could not be exported—or even collected—in the long run and could only be shifted and partially exported to owners of refineries in the short run, a severance tax on extraction of crude oil could be exported to the extent that economic rents accrue to non-residents, even in the long run.

The analogous situation in the market for a competitive fuel deserves attention because it is also often misunderstood. The extraction of Western coal almost certainly generates huge economic rents, especially since the practices of OPEC have

so drastically raised the price of an important substitute fuel. A severance tax levied by one state would almost certainly come in large part from those rents. But so might a tax on the processing of coal in either gasification plants or electrical generating facilities. Compared to the situation with crude oil and refined petroleum products there is so much loss of weight in the processing of coal that the processing is substantially more tied to the location of extraction.[13] But there is one over-riding similarity in the two cases: conditions simply do not allow one state to export to non-resident consumers a tax on the extraction or processing of coal or crude oil except under special circumstances.[14] If exporting is to occur it must be to recipients of economic rents from the resource or quasi-rents from temporarily fixed investments in processing facilities.

FOOTNOTES

[1]Any state or local government can tax *consumption* of energy occurring within its boundaries, and may want to do so in the interest of charging users for the marginal cost of transportation or in order to reduce environmental damage. But a discussion of these applications is, I believe, not my assignment today; rather, I take that assignment to be the analysis of the economic constraints facing state and local governments which would tax the *production* of energy resources.

[2]This discussion draws heavily upon Gillis and McLure (1975) and McLure (forthcoming).

[3]If labor employed in the extractive industry in question were unionized, and therefore sharing in the resource rent, or geographically and industrially immobile, such workers might also share in the burden of the tax.

[4]It was noted during the discussion at the symposium that the Justice Department has recently announced that it would bring civil and criminal actions against officers of states engaged in attempts at cartelization.

[5]For an indication of the importance of market dominance as a determinant of the ability to export production taxes see the discussion in McLure (1964).

[6]For a discussion of the possibility of exporting taxes on uranium and coal to nonresident consumers, see Gillis (1978).

[7]The likely incidence of recent increases in taxes on bauxite is discussed in Gillis and McLure (1975).

[8]For one such demonstration of this theorem, see Musgrave (1959), Chapter 13.

[9]Much of the discussion of this section is based upon material in McLure (1975).

[10]As indicated in McLure (1975), these conclusions would not seriously be affected by consideration of current regulations on the pricing of petroleum products under federal law. But one can imagine combinations of allocation rules and procedures for passing through increases in taxes that would foster forward shifting.

[11]It might appear that a tax which exempted inputs of petrochemical plants might stimulate the development of that industry. But any such stimulus would probably be only temporary because of the close links between the petroleum and petrochemical industries.

[12]For a more detailed discussion of how extraction taxes affect decisions on methods and quantities of output, see Gillis (forthcoming) and literature cited there.

[13]For a provocative discussion of the taxation of coal from the perspective of a governor of a producing state, see Link (1978).

[14]One set of circumstances under which exporting to consumers could occur is, however, fairly common. Some long-term contracts provide for the purchase of fixed quantities of coal at prices that escalate with increases in severance taxes.

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2. Gillis, Malcolm and McLure, Charles E., Jr., "Incidence of World Taxes on Natural Resources with Special Reference to Bauxite," *American Economic Review*, vol. 65 (May 1975), pp. 389–396.
3. Link, Arthur A., "Political Constraints and North Dakota's Coal Severance Tax," *National Tax Journal*, vol. 31 (September 1978).
4. McLure, Charles, "Commodity Tax Incidence in Open Economies," *National Tax Journal*, vol. 17 (June 1964), pp. 187–204.
5. McLure, Charles E., Jr., "The Economic Effects of a Texas Tax on the Processing of Petroleum Products," xerox, 1975.
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7. Musgrave, Richard A., *The Theory of Public Finance* (New York: McGraw-Hill, 1959).

Exhibit II-4

STATE OF MONTANA
DEPARTMENT OF ADMINISTRATION

Memorandum

TED SCHWINDEN
GOVERNOR

TO: Bill Christiansen
Attorney General's Office

FROM: Phil Brooks
Research & Information Systems Division

DATE: July 30, 1981

SUBJECT: Data Requested

I was unable to come up with consumer expenditure data of a form that I thought would be useable to you. Additional digging might turn up something.

My judgement is that location quotients showing the degree of concentration of different manufacturing industries in Montana compared with the national average may be your best bet after you identify which industries don't exist in Montana at all. We could do the work of generating the quotients for you at a modest cost.

Enclosed is information on activity in Montana manufacturing industries.

rr

Enc.

9. BTU Comparison of Severance and Production Taxes on Oil and Gas

(Figures are in ¢ per million BTUs*)

	OIL	GAS	OIL and GAS
Texas (FY80)	14.85	10.18	12.19
Louisiana (FY80)	27.62	6.68	13.32
Oklahoma (FY80)	26.86	9.16	14.55
New Mexico (CY 80)	13.27	8.27	9.66

*Assumes 5.8 million BTUs/barrel of oil and 1.02 million BTUs/mcf of natural gas.

Montana Coal Serverance Tax (Fiscal Year 1980)

¢ per million BTUs 12.11
(assumes 18 million BTUs per ton)

BT Comparison of Severance Taxes*

Texas[1] (Fiscal Year 1980, Sept. 1979 - August 1980)

	Production	Tax	Million BTUs	Tax/Million BTUs
Oil	935,698,196 bbls.	$806,000,008	5,427,049,537	$ .1485
Natural Gas	7,073,020,000 mcf.	$734,610,000	7,214,480,400	$ .1018
			Oil & Gas	$ .1219

Louisiana[2] (Fiscal Year 1980)

	Production	Tax	Million BTUs	Tax/Million BTUs
Oil	209,158,801 bbls.	$335,017,133	1,213,121,046	$ .2762
Natural Gas	2,558,384,379 mcf.	$174,308,231	2,609,552,067	$ .0668
			Oil & Gas	$ .1332

Oklahoma[3] (Fiscal Year 1980)

	Production	Tax	Million BTUs	Tax/Million BTUs
Oil	145,382,195 bbls.	$226,451,820	843,216,731	$ .2686
Natural Gas	1,889,357,631 mcf.	$176,566,051	1,927,144,784	$ .0916
			Oil & Gas	$ .1455

New Mexico[4] (Calendar Year 1980)

	Production	Tax	Million BTUs	Tax/Million BTUs
Oil	75,000,000 bbls.	$ 57,742,000	435,000,000	$ .1327
Natural Gas	1,106,000,000 mcf.	$ 93,280,000	1,128,120,000	$ .0827
			Oil & Gas	$ .0966

Montana[5] (Fiscal Year 1980)

Coal Production (includes Exemption)	Tax	Million BTUs	Tax/Million BTUs
34,459,771	$75,124,932	620,275,878	$ .1211

*Assumes 5.8 million BTUs/barrel of oil, 1.02 million BTUs/mcf of natural gas, and 18 million BTUs/ton of coal.

1 Source: Texas Planning and Research Division.

2 Source: Louisiana Severance Tax Division.

3 Source: Oklahoma Minerals Tax Division.

4 Source: New Mexico Oil and Gas Division.

5 Source: Montana Department of Revenue, Research and Information Division.

To: Bill Christiansen
From: Terry Cohen
Re: Coal tax lobby information

Attached is the latest Commerce Clearinghouse table on states' sales taxes.

I called Illinois and Indiana to check on the application of the sales tax. The data on the other states is taken from the Clearinghouse narrative.

Illinois — electricity sales are not subject to the sales tax. However, utilities pay a public ~~ute~~ utilities tax of 5.08% of gross revenue.

Indiana — electrical sales are subject to the sales tax.

Minnesota — electricity sales are taxable except during November - April

Texas — electricity used in industry, mining, agriculture, and water pumping is exempt from the tax.

Wisconsin — electricity sales are taxable except that used in agriculture during November-Ap

Table of Rates

State tax rates generally applicable to the retail sale of tangible personal property are tabulated below. Many states also authorize local jurisdictions to adopt sales or sales and use taxes in addition to the state tax. For details see the following state summaries.

	Sales *	Use *
Alabama [1]	4%	4%
Arizona [1]	4%	4%
Arkansas [1]	3%	3%
California [1]	4¼%	4¼%
Colorado [1]	3%	3%
Connecticut	7½%	7½%
District of Columbia	6%	6%
Florida [1]	4%	4%
Georgia [1]	3%	3%
Hawaii	4%	4%
Idaho	3%	3%
Illinois [1]	4%	4%
Indiana	4%	4%
Iowa	3%	3%
Kansas [1]	3%	3%
Kentucky [1]	5%	5%
Louisiana [1]	3%	3%
Maine	5%	5%
Maryland	5%	5%
Massachusetts	5%	5%
Michigan	4%	4%
Minnesota [1]	4%	4%
Mississippi	5%	5%
Missouri [1]	3⅛%	3⅛%
Nebraska [1]	3%	3%
Nevada [1]	3½% [2]	3½% [2]
New Jersey	5%	5%
New Mexico [1]	3¼% [3]	3¼% [3]
New York [1]	4%	4%
North Carolina [1]	3%	3%
North Dakota	3%	3%
Ohio [1]	4% [4]	4% [4]
Oklahoma [1]	2%	2%
Pennsylvania [1]	6%	6%
Rhode Island	6%	6%
South Carolina	4%	4%
South Dakota [1]	5% [5]	5% [5]
Tennessee [1]	4½% [6]	4½% [6]
Texas [1]	4%	4%
Utah [1]	4%	4%
Vermont	3%	3%
Virginia [1]	3%	3%
Washington [1]	4.5%	4.5%
West Virginia [1]	5%	5%
Wisconsin [1]	4%	4%
Wyoming [1]	3%	3%

[The next page is 6031.]

* The list of states imposing sales and use taxes does not include Delaware. Delaware imposes a merchants' and manufacturers' license tax and a use tax on leases. Other states impose occupation, admission, license or gross receipts taxes in addition to sales and use taxes (see Connecticut, Indiana, Maryland, Mississippi, New Mexico, Rhode Island, South Carolina, Texas, Washington and West Virginia).

[1] Local tax rates are additional.

[2] Nevada: Effective May 1, 1981 through June 30, 1983, the total rate is 5¼%.

[3] New Mexico: Effective July 1, 1981, the tax rate is 3½%.

[4] Ohio: Effective January 1, 1981 through June 30, 1981, the tax rate is 5%.

[5] South Dakota: Effective July 1, 1981, the tax rate is reduced to 4%.

[6] Tennessee: The rate of tax is decreased to 3%, effective July 1, 1982.

"IS State government tax collections
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STATE GOVERNMENT TAX COLLECTIONS IN 1980

MONTANA LEGISLATIVE COUNCIL
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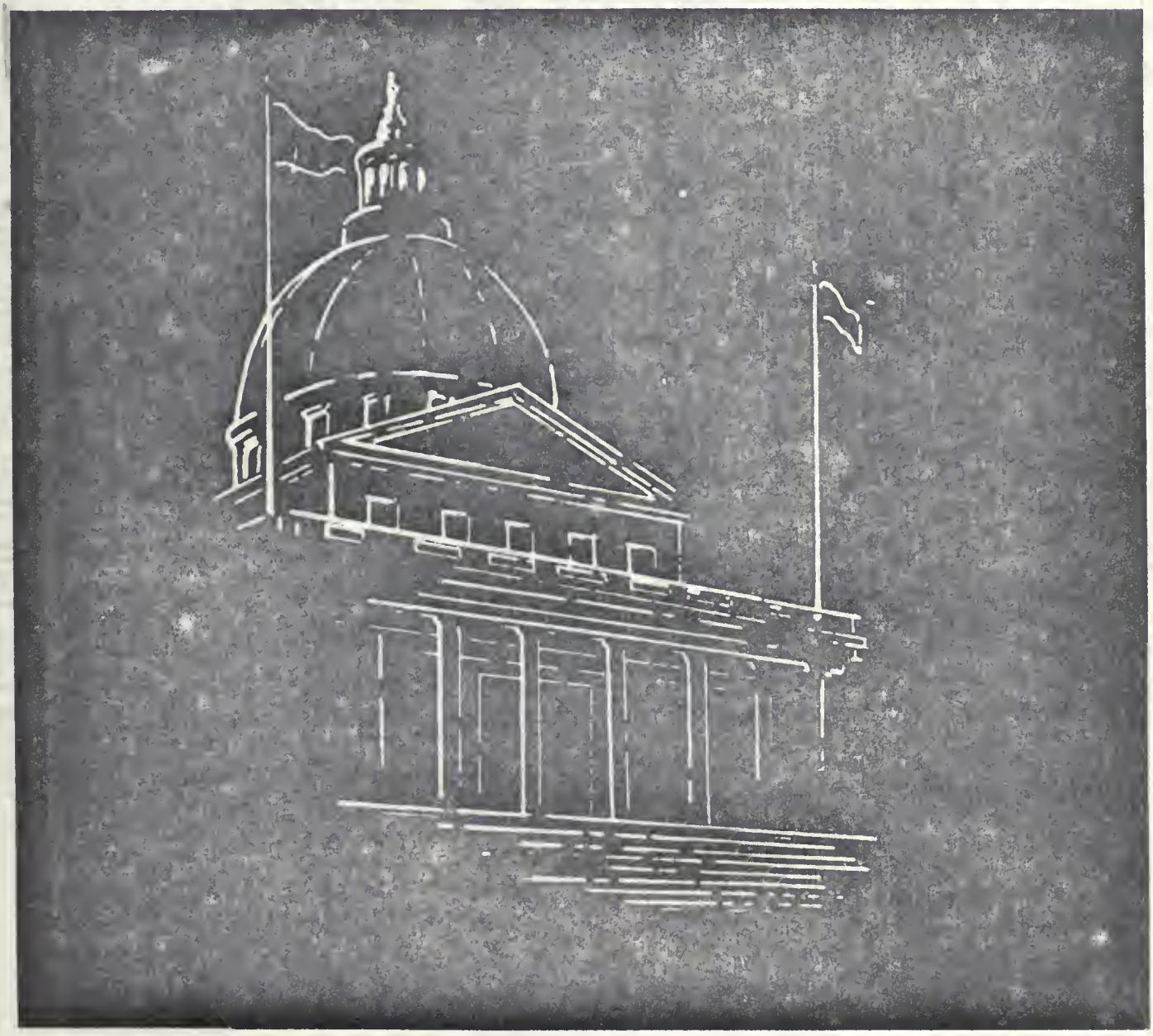

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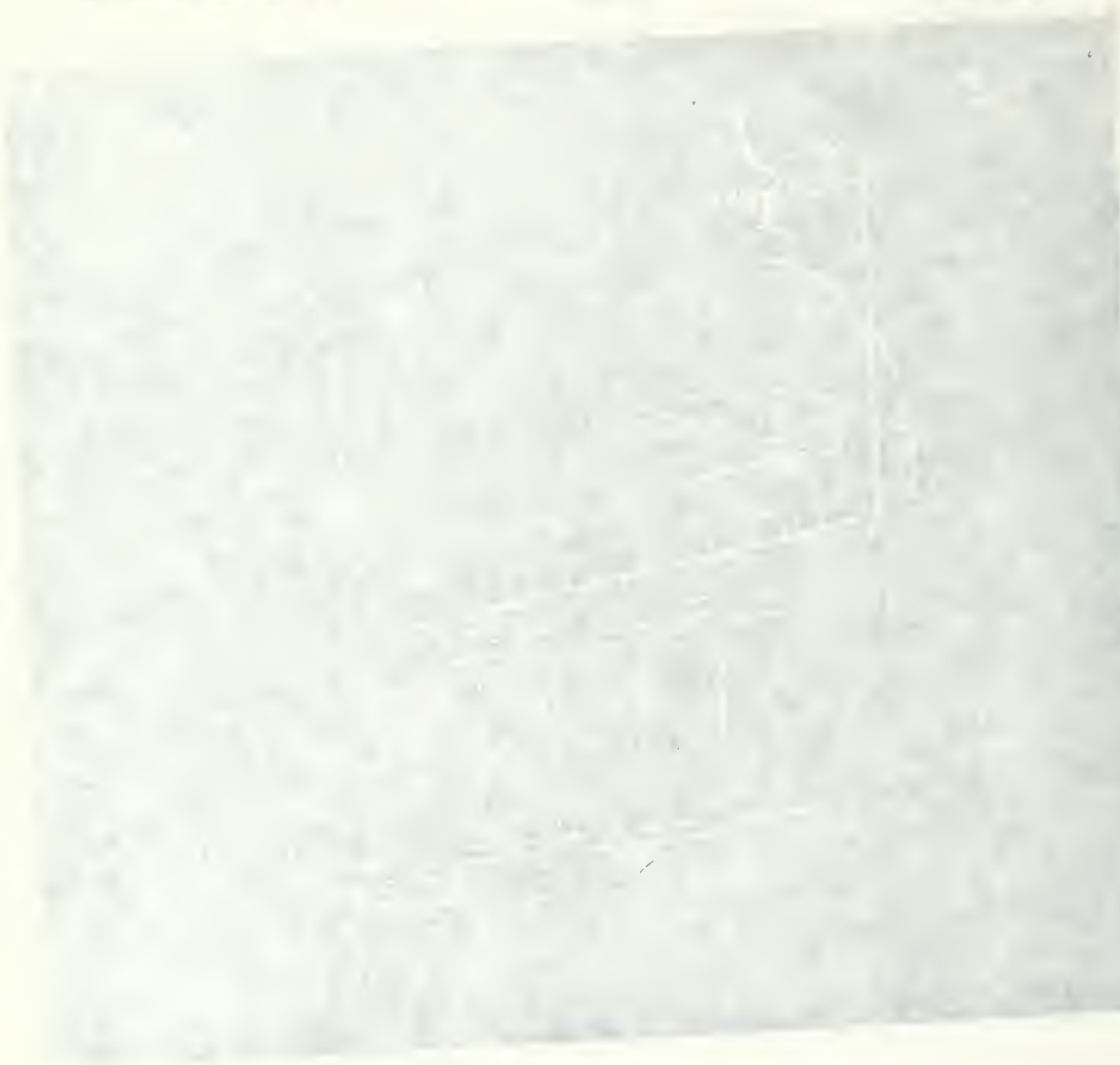


Table 3. State Government Tax Revenue, by Type of Tax: 1980

(Thousands of dollars)

State	Total	Sales and gross receipts[1]	Licenses[2]	Individual income	Corporation net income	Property	Death and gift	Severance	Documentary and stock transfer	Other
Number of States using tax	50	50	50	44	46	44	49	33	38	15
All States	136,813,324	57,662,851	9,290,420	37,089,482	13,321,381	2,892,105	3,035,269	4,187,399	988,806	35,811
Alabama	1,856,789	1,148,256	118,562	396,370	109,238	44,267	5,441	32,410	8,001	(X)
Alaska	1,437,607	84,472	39,136	100,481	585,329	189,018	195	506,486	(X)	2,356
Arizona	1,884,399	1,056,991	86,039	267,498	117,764	121,990	12,117	(X)	(X)	(X)
Arkansas	1,180,788	825,314	105,863	318,844	83,714	3,932	4,868	18,081	2,880	(X)
California	10,366,896	5,669,782	629,387	8,483,736	2,507,183	877,238	483,406	25,854	(X)	(X)
Colorado	1,480,853	757,861	93,389	461,375	110,807	3,832	29,780	31,121	(X)	3,018
Connecticut	1,839,878	1,328,202	111,142	100,853	246,139	13	84,784	(X)	(X)	488
Delaware	315,713	74,169	144,468	236,783	40,353	(X)	7,883	(X)	12,868	11
Florida	4,804,288	3,544,031	379,843	(X)	371,405	86,091	89,910	121,254	231,782	(X)
Georgia	2,726,961	1,506,923	63,896	672,073	239,713	8,565	7,517	(X)	8,739	335
Hawaii	898,383	814,237	15,892	311,404	50,259	(X)	4,328	(X)	2,263	(X)
Idaho	490,346	223,490	58,510	159,136	42,604	173	4,524	1,805	(X)	(X)
Illinois	7,073,077	3,681,186	439,805	1,900,876	787,827	103,878	122,728	(X)	8,776	(X)
Indiana	2,893,739	1,761,331	127,788	556,709	179,191	30,313	36,843	1,582	(X)	(X)
Iowa	1,746,878	778,242	176,985	802,385	138,564	(X)	47,668	(X)	2,984	(X)
Kansas	1,269,871	834,819	103,096	336,061	149,317	18,832	26,246	1,100	(X)	(X)
Kentucky	2,144,941	1,007,078	84,969	503,832	158,646	176,759	33,295	177,344	918	(X)
Louisiana	2,396,845	1,189,867	182,182	247,438	249,338	32	27,891	525,297	(X)	(X)
Maine	518,180	347,875	56,179	142,689	45,058	15,198	11,397	(X)	936	(X)
Maryland	2,760,818	1,347,724	112,453	1,097,009	166,857	83,397	20,853	(X)	26,730	4,795
Massachusetts	3,927,303	1,349,502	93,375	1,830,033	532,383	812	78,852	(X)	12,348	(X)
Michigan	5,967,850	2,556,718	340,358	1,916,828	810,732	133,412	48,281	43,823	(X)	(X)
Minnesota	3,202,581	1,218,223	164,483	1,282,897	381,217	4,261	41,972	83,439	18,294	(X)
Mississippi	1,257,932	898,777	80,247	150,298	84,389	4,723	8,006	32,814	(X)	(X)
Missouri	2,094,589	1,148,337	179,442	603,319	135,103	3,038	26,255	48	(X)	48
Montana	435,751	93,191	38,028	135,012	45,823	18,129	8,337	94,838	(X)	397
Nebraska	818,787	448,856	67,038	235,821	57,378	2,502	2,277	2,848	1,746	(X)
Nevada	478,604	391,327	54,193	(X)	(X)	21,024	(X)	23	37	(X)
New Hampshire	237,495	133,372	40,768	10,474	32,788	8,218	8,256	311	3,310	(X)
New Jersey	4,104,292	1,930,081	489,883	1,004,781	497,205	73,932	111,047	(X)	17,403	(X)
New Mexico	926,048	537,083	55,534	48,646	46,272	24,341	2,327	213,843	(X)	(X)
New York	12,716,773	4,807,685	496,180	5,780,045	1,235,340	8,520	124,820	(X)	465,122	(X)
North Carolina	3,213,346	1,413,025	240,715	1,180,507	291,752	45,908	42,148	1,292	(X)	(X)
North Dakota	371,861	181,814	41,424	53,348	38,348	2,174	2,828	43,037	(X)	(X)
Ohio	4,768,715	2,858,587	367,242	1,039,728	317,394	141,880	37,208	4,396	(X)	(X)
Oklahoma	1,776,044	676,807	173,470	361,893	89,869	(X)	27,477	438,098	4,534	3,894
Oregon	1,453,352	172,186	158,281	867,976	177,425	77	27,359	50,592	478	(X)
Pennsylvania	7,340,808	3,318,743	748,788	1,671,842	861,882	181,287	173,229	(X)	83,239	(X)
Rhode Island	550,787	297,993	23,270	135,812	53,830	8,290	11,962	(X)	1,585	1,185
South Carolina	1,878,049	938,284	85,557	494,788	153,475	8,062	8,309	(X)	9,593	(X)
South Dakota	270,518	232,631	24,690	(X)	3,293	(X)	7,262	2,473	(X)	(X)
Tennessee	1,886,982	1,415,967	181,522	30,800	198,221	(X)	28,786	2,204	30,030	9,449
Texas	8,758,708	4,366,962	741,680	(X)	(X)	47,351	75,589	1,525,118	(X)	(X)
Utah	785,755	433,964	33,661	265,327	40,377	147	1,668	10,564	(X)	(X)
Vermont	268,317	128,010	27,487	83,182	22,423	327	1,388	(X)	3,038	500
Virginia	2,743,325	1,212,383	149,138	1,103,008	183,847	23,503	27,281	1,012	30,208	2,815
Washington	2,917,443	2,176,818	136,134	(X)	(X)	471,358	54,568	49,974	8,812	(X)
West Virginia	1,219,482	843,791	71,660	252,382	32,869	713	12,838	(X)	3,105	518
Wisconsin	3,366,311	1,303,000	151,743	1,430,478	311,321	94,075	56,781	437	2,391	4,075
Wyoming	389,125	213,073	41,377	(X)	(X)	23,080	2,893	105,700	(X)	(X)
XXH19T: District of Columbia	940,888	375,931	29,280	275,831	66,546	219,395	9,893	(X)	14,390	(X)

Note: See table 8 for information on particular taxes and additional analytical detail.

X Not applicable.
[1] For additional detail, see table 4.
[2] For additional detail, see table 5.

STATE
OF
MONTANA
DEPARTMENT OF JUSTICE
AGENCY LEGAL SERVICES BUREAU
Capitol Building, Helena, Montana 59601
(406) 449-4582

MEMORANDUM

TO: MIKE McGRATH

FROM: ROY ANDES

RE: Coal Tax--Federal Property Rights To Leased Coal Under the Mineral Lands Leasing Act

DATE: 23 July 1981

The issue addressed by this memorandum is whether and to what extent coal taxed by Montana is the property of the federal government as opposed to the coal company which pays the tax. This memo considers only the legal question leaving aside the economic issue of what extent Montana's tax does or does not diminish bonuses and royalties otherwise payable to the federal government. To some extent the two issues are inextricably interwoven so this memo digresses slightly into the latter issue. Such excursions are casual at best in their treatment of the economic issue.

> A coal severance tax is by its very nature a tax on property--long recognized by the courts as a legitimate if not essential method of state revenue production.

Commonwealth Edison Co. v. Montana, ___ Mont. ___, Cause No. 80-581, slip op. at 13. Montana's tax in particular is on the contract value of the coal at mine mouth. Sections 15-35-102(1) and 103, MCA. Legally speaking Montana's tax is imposed AFTER federal royalties on the extracted coal. 30 U.S.C. section 207(a); 30 CFR section 211.63(a)(in practice the imposition of cost may or may not be otherwise.)1/

1/ 30 C.F.R. section 211.63 Value basis for royalty computation.

(a) Where only crushing, storing, and loading are performed prior to the point of sale, the value of the coal for royalty purposes shall be the gross value at the point of sale. However, if additional processing of the coal is performed prior to sale, such as washing to remove waste, bone, or other impurities, the process cost above the cost of primary crushing, storing, and loading may be deducted from the gross value in determining value for royalty purposes. The Mining Supervisor will allow such deductions only when, in his judgment and subject to his audit, the lessee provides him an accurate account of the costs so incurred. (Emphasis added.); see also subsection (b) defining "gross value."

The general nature of a "lease" as traditionally used in property law supposes the grant of "use" of real property for a period of time. Blacks Law Dictionary. Such ordinary lease-rental relationship does not envision any destruction of the real estate.

A mineral lease is decidedly different. An established treatise on mining law describes the legal regime this way:

> . . . mineral in place is land; . . . when it is taken therefrom and changed into personal property, real estate has to that extent been destroyed. It is obvious that the normal relation of landlord and tenant does not contemplate destruction of the estate by the tenant, and that such destruction cannot properly be called "use.". It is equally plain that the so-called "rent" in a mining lease is something more than a return for the possession and use of real property. While the contract is in name a lease, it amounts in fact to a sale, and if it grants the right to take all the mineral, it is a sale of real estate--the lessee's interest is a fee in the mineral and the leasor's so-called rent is purchase money for real estate.

Lindley On Mines (1914) section 861, pp. 2135-2136.

So the fundamental nature of a lessor-lessee relationship in the conveyance of minerals is that of a simple sale. Professor Lindley likewise applied the same doctrine of necessity to federal leases:

> Although the doctrine that a grant of all the mineral in a described tract of land, whether by deed or so-called lease, conveys an estate in the mineral as land, does not seem to have been specifically passed upon as applicable to a lease of mining property acquired or held under the United States Mineral Acts, we are constrained to believe that when such questions arise, the general doctrine as herein set forth will be recognized and applied with all its attendant consequences. That doctrine, as we have seen, is based upon the principles that mineral in place is land, that a grant of the right to extract and dispose of it, and thus destroy its character as real estate, amounts to its sale as land, and that royalties (or so-called rent), payable per quantum of the mineral taken, are purchase money and principal, rather than rent and income. As these principles flow from the nature of mineral land as such, we can see no reason why they should not be of equal application to leases of mineral

land acquired form any source. (Emphasis added.) Lindley, supra pages 2137-2138.

Lindley's treatise goes on to describe the method by which one developed a "patented claim" (i.e.: "Vested title") and to describe how existing court cases so applied the law. The question for us 70 years later is to what extent Lindley's statement of the law remains applicable to present day federal leasing.

As a general proposition, when a coal company undertakes mineral acquisition under the Mineral Lands Leasing Act (the "Act") the companies' ownership attributes over the coal grow at each stage of mineral development. Three distinct stages are discernable--prospecting claim, lease, and appropriation. The respective property rights of the federal government and coal company vary between each stage, and--due to amendments of the Act--may vary as well within any stage.2/

A prospecting claim is little more than a permit to conduct prospecting work on the designated federal land. Minimal duties are imposed in exchange for the right. 30 U.S.C. section 201(b) (pre-1976).

Even a prospect permit requires an administrative hearing before cancellation and then only for violation of the terms of the permit or some permit prerequisite. Hickel v. Oil Shale Corp., 400 U.S. 48, 27 L.Ed.2d 193 (1970). See Wilbur v. Krushnic, 280 U.S. 306, 74 L.Ed. 445; Ickes v. Virginia Colorado Development Corp, 295 U.S. 639, 79 L.Ed. 1627.

2/ This fact alone highlights the property like nature of acquired federal mineral rights. In short a right of any kind once acquired cannot be amended or restricted even by congressional act. The Act itself so recognizes by exempting previous mineral entrants from its provisions. 30 U.S.C. section 193. See NRDC v. Bergland, and Kenney Costal Oil Co. v. Kieffer, infra.

Although prospecting permit is not normally considered a form of property right, it nevertheless conveys some attributes of irrevocable property interest. All information obtained by the prospector in exploration is strictly proprietary and confidential. 30 U.S.C. sections 201(b) and 208-1(c). Prior to the 1976 amendments a prospector discovering commercial mineral deposits was entitled to a patented lease as a matter of right. (Called a "preference right".) 30 U.S.C. section 201(b) (pre-1976 code).3/

A successful coal prospector under permits predating 1976 automatically acquired both in fact and in name the property right to mine coal.

Since 1976 amendments to the Act have abolished the preference right. Pub. L. 94-377, sections 2-4, 90 Stat. 1083, 1085. In its place the new section 201 provides in all cases for competitive bidding for federal coal leases. 30 U.S.C. section 201(a)(1). As a practical matter, however, since the information developed by a prospector under subsection (d) is completely confidential only the prospector is likely to submit a winning bid.

3/ In NRDC v. Bergland, 609 F.2d 553 (D.C. Cir. 1979) it was held the National Environmental Policy Act requirement that all acts and regulations be interpreted in accord with its environmental policies "to the fullest extent possible" did not allow federal denial of a lease to a successful prospector even for environmentally detrimental mining.

> ". . . the plain meaning of the statute as well as undisturbed administrative practice for nearly 60 years leaves the Secretary no discretion to deny a section 201(b) lease to a qualified applicant.
>
> * * *
>
> "For the some 183 lease applications outstanding under the former version of the provision, the property rights anticipated by permittee applicants cannot be diminished. Where environmental damage from granting leases to entitled parties is certain, the Secretary is authorized to negotiate an exchange for other mineral leases of similar value. (Emphasis added.)"

609 F.2d at 558-559.

The second stage of mineral acquisition under the Act is the issuance of a coal mining lease. For almost all intents and purposes the issuance of a lease vests the title to the mineral in the ground in the coal company. The lease conveys numerous rights express and implied and is virtually impossible for the federal government to revoke.

Not the least of the rights conveyed is that to use of the surface. Since most federal coal underlies land wherein the surface and mineral estates were severed generations ago frequent conflicts have arisen between surface and mineral owners. A series of cases however have declared the preeminence of the mineral entryman over the surface owner for most purposes. In Kinney Costal Oil Co. v. Kieffer, 277 U.S. 488, 72 L.Ed. 961 (1928), affirming 9 Fed.2d 260 (8th Cir.), the U.S. Supreme Court determined that an oil and gas lessee of the federal government could by injunction forbid the surface owner from erecting a townsite over the mineral. The court held that Kieffer's only entitlement to damages was not for any "use of" the surface for mining but for "damages"--limited to crops and agricultural improvements--that might occur. 277 U.S. at 505, 72 L.Ed. at 966. The court said:

> By this suit plaintiffs are not seeking to acquire a right to use the surface but to protect from wrongful obstruction and impairment the right which they already have.

Ibid.

More recently the principles of Kieffer were followed in denying a federally licensed gas transmission company right to lateral and subjacent support for its transmission line and compressor station. Transwestern Pipeline Co. v. Kerr-McGee Corp., 492 F.2d 878 (1974). Transwestern like Kieffer was also denied recovery of any damages inflicted by the mining.

As distinguished from prospecting permits, mineral leases may not ordinarily be cancelled by way of the administrative process. Pan American Petroleum Corp. v. Pierson, 284 F.2d 649, at 654 (10th Cir. 1960). The circuit court in Pan American refused to permit administrative revocation of a lease obtained through fraud. The court reasoned:

> Under each theory the government, by the issuance of the lease, has performed the last act required of it to vest in the lessee the right to explore for, produce, market and sell the oil and gas underlying the leased premises. Similarly the issuance of a patent is the last act of the government in disposing of the non-mineral lands of the public domain. Upon the performance of this act,

> administrative power to annul or cancel ends and judicial power begins. The difference between a patent and an oil and gas lease is no reason for the denial of the power of administrative cancellation of a patent and for the recognition of such power to cancel a lease, unless Congress in the exercise of its authority over the public lands has provided for such administrative cancellation of leases after issuance. (Emphasis added.)

284 F.2d at 654, 655.

The strict rule of the Pan American case has been slightly liberalized. In Boesche v. Udall, 373 U.S. 472, 10 L.Ed.2d 991 (1963) the Supreme Court affirmed the administrative authority of the Secretary of Interior to cancel the mineral lease of a person who's application on its face demonstrated his ineligibility. The Supreme Court's opinion carefully distinguished leases under which extraction was already underway4/ and leases issued through the competitive bid process.5/

In particular the Boesche Court pointedly refused to extend its holding to allow administrative cancellations of leases based on post-lease events as opposed to pre-lease events amounting in fact to voidness. 373 U.S. at 478-479, 10 L.Ed. at 495.

Other than the narrow exception carved out by Boesche divesting a mineral lease holder of his lease requires judicial proceedings. 30 U.S.C. sections 184(h) and 188(a). Then divestment only occurs for limited substantive reasons--breach of pre-existing law, prior regulations, lease terms, and abandonment. 30 U.S.C. section 188(a) & (c).

In further recognition of the vested property interest of the mineral lessee, the imposition of regulations by the federal government is similarly limited. Extensive controls may be emplaced by the federal government at the inception of a lease in the way of environmental and other constraints. Otherwise, the terms of the lease and nature of federal regulation may only be amended at the expiration of the lease or upon the 20 year renewal. 30 U.S.C. sections 187 and 207.

4/ 373 U.S. at 482, 10 L.Ed.2d at 497; See 30 U.S.C. section 188(b).

5/ 373 U.S. at 482, 10 L.Ed. 2d at 498, note 11.

Although the federal government must approve mining plans on leased premises as they develop, that approval is limited to a very narrow review. In the Transwestern case the Court essentially found that the Department of Interior had no authority to review the mining plan for any purpose other than maximizing coal production and miner safety.

> I further find that the Department of Interior and Kerr-McGee had no obligation to notify or hear Transwestern insofar as the approval or disapproval of a mining plan was concerned. The legislation providing for a mining plan and Department approval of it was designed for the purpose of seeing that the maximum amount of ore would be produced without waste and in such manner that the health and lives of the miners would not be placed in jeopardy. (Emphasis added.)

492 F.2d at 882.

Thus federal regulation under mining plan review in no way affects the substantive title to the coal in place.

Summarizing the nature of the interests in a federal leasehold, while the title to the unextracted coal is nominally in the United States, as far as most of the attributes of property law are concerned the mineral lessee has a vested fee interest. The federal government may not restrict his title by subsequent law or regulation. It may not withdraw or withhold the lease for environmental or other purposes. Excepting for conditions amounting to a void lease, judicial action alone may revoke a lease even for violation of the express terms of its issuance.6/

6/ In the Transwestern case the circuit court also held that Transwestern Pipe Line could not condemn the unextracted minerals for supporting its right of way. It reasoned that since the mineral was the property of the United States no condemnation would lie. The Court's decision legalistically determined that the United States was the "fee owner" of the mineral estate (without citing authority). In fact even assuming title to the mineral to be in Kerr-McGee a condemnation would work a condemnation of U.S. royalty interests as well and therefore condemnation would be prohibited in either instance.

The third stage of mineral acquisition is that of appropriation. At this point the mineral entrant has severed the coal from the ground. There is so little dispute as to the absolute ownership of extracted coal that there are no cases in which the issue has even been presented.7/ But various dicta and tangential holdings demonstrate the conclusion.

In the Boesche decision the Supreme Court explicitly noted that mineral leases under production were not subject to administrative revocation. By implication the extracted minerals themselves must have fully passed into the ownership of the lessee.

Nowhere in the Mineral Lands Leasing Act does the federal government retain any sort of lien or mortgage on extracted coal or other minerals. The remedy for unpaid royalties is suit to collect amounts owing. American Electric Power v. Beschear, 529 F.2d 1113 (6th Cir. 1976).

Indeed, the act itself creates federal purchase rights for coal necessary for national defense providing proceedings in the nature of a condemnation action. 30 U.S.C. section 193(a). The necessary assumption of section 193 a is that the extracted coal is wholly the property of the coal company and the government in acquisition must pay the going market value.

At this point the Montana severance tax is imposed on the coal. Obviously, by this juncture if not well before, the nature of the coal companies' interest is title clear and simple. The federal government has relinquished the attributes of ownership over the coal.

7/ Regarding lease of coal on Indian lands the Ninth Circuit has explicitly held that as of the incidence of Montana's severance tax the coal is the property of the lessee coal company rather than the Indians or the federal government. Crow Tribe of Indians v. Montana, ___ F.2d ___ (July, 1981). Compare Indian leasing statutes at 25 U.S.C. section 396 to 30 U.S.C. sections 181 and 201.

To attack Montana's severance tax as somehow depriving the United States of its coal or coal revenue is grabbing the tail to wag the dog. If indeed the concern is to recapture the control and value of federal coal for the American people, the only effective way of doing so is to reform the process of divesting the government of its coal in the first place. To improve financial return for example the government should increase competition for its coal leases by providing better public resource information prior to competitive bidding or by fixing bonuses and instead providing competive royalty bidding.8/

The federal government could itself impose a national severance tax on coal. Greater federal control over the extraction process could be achieved by more extensive mining regulation and better enforcement of the diligence and forfeiture provisions of existing leases.

All of these hypothetical solutions would more directly attack the root concerns of the federal government in its coal leasing program. By contrast the limitation on Montana's severance tax would have no affect on federal rights. The incidence of the tax is simply too far down the road.

8/ This would encourage efficient but low risk producers to bid on relatively unknown tracts. This in turn would increase the competition in bidding and thereby increase the likelihood of higher bids for the coal.

MANAGEMENT FRAMEWORK PLAN

Decker-Birney Planning Unit

July 1977

U.S. Department of the Interior
Bureau of Land Management
Montana State Office
Miles City District
Powder River Resource Area

The major contributor to the area economy is the ranching industry. Irrigated and dryland farming commonly supplement ranch operations.

There is one strip mine in the area near Decker; however, this mine operation does not contribute significantly to the economy as it is an export operation and most of the employees live in Sheridan, Wyoming, and commute daily.

The surface ownership of the planning unit is predominately private with scattered tracts of public lands and state lands. The northeastern portion of the area is within the Custer National Forest. However, approximately 88% of the subsurface estate is in federal ownership.

OWNERSHIP AND ACREAGE STATISTICS

ACRES

	Public Lands	Forest Service	State	Private
Surface	78,700	153,500	48,000	618,500
Subsurface (Mineral Estate)	626,500	162,500	48,000	61,700

DEPARTMENT OF STATE LANDS

Exhibit IV--3A

THOMAS L. JUDGE, GOVERNOR

CAPITOL STATION

STATE OF MONTANA

(406) 449-2074
(406) 449 4560 RECLAMATION DIVISION

1625 ELEVENTH AVENUE
HELENA, MONTANA 59601

[redacted], COMMISSIONER
Gareth C. Moon

January 28, 1981

MEMORANDUM

TO: Bill Christiansen

FROM: Kelly Blake

RE: Coal Leasing

In June, 1979 the federal government implemented a new program for coal leasing called the Federal Coal Management Program. This new program was set up to address the issues of leasing federal coal in a competitive nature. The State of Montana stopped leasing coal on state-owned lands in the early 1970's so that a better system of leasing could be achieved. Since the formulation of the FCMP, the Department of State Lands entered into a Memorandum of Understanding to do joint leasings and environmental impact statements. In having this MOU, we will be able to lease state tracts within federally designated tracts thereby forming more logical mining units which would be to the benefit of all concerned.

Tim Gallagher of the Governor's Office has been appointed as the Governor's representative on the Fort Union and Powder River Regional Coal Teams. The Regional Coal Teams will ultimately decide which tracts are offered for sale. The Powder River leasing has been set for April, 1982 and the Fort Union leasing is set for June, 1983. The Powder River Region consists of Treasure, Rosebud, Powder River and Big Horn counties. The Fort Union Region consists of Carter, Custer, Fallon, Prairie, Garfield, McCone, Dawson, Wibaux and Richland counties for primary concern although several counties north of the Missouri are part of the region.

Ten tracts have been delineated for leasing in the Montana portion of the Powder River Basin and are currently being ranked for eventual leasing. Of those ten tracts, six are basically extensions of existing mines and four are new tracts. In the time remaining until lease sale all ten of these tracts will undergo cumulative analysis and an environmental impact statement. In Fort Union, five known recoverable coal resource areas have been delineated by the USGS. Tract delineations within these resource areas are under way now and site specific analysis as well as facility evaluations will be completed

by the end of May. Powder River bituminous coal is being viewed as coal being shipped out of Montana or for use at Colstrip. Fort Union coal is lignite coal and will have uses for synfuels, gasification or power plant generation facilities. Facility siting will be the big question in Fort Union.

The State of Montana assists the Bureau of Land Management as much as possible to address issues of vital concern to us. Several agencies participate in providing information and data in the areas of wildlife, air and water quality, economics, etc. to BLM in assisting their planning efforts.

I hope this gives you some understanding of the coal program in Montana. I do not foresee any leasing of state coal until such time as federal leasing takes place. The only leasing that might take place would be a bypass situation where state coal would be lost otherwise. If you have any questions, please contact me as this memo is only a brief review of the program.

jc

Exhibit IV-3B

THOMAS L. JUDGE, GOVERNOR
CAPITOL STATION

STATE OF MONTANA

(406) 449-2074
(406) 449-4560 RECLAMATION DIVISION
1625 ELEVENTH AVENUE
HELENA, MONTANA 59601

LEO BERRY, COMMISSIONER

Memorandum

To: Bill Christiansen, Attorney General's Office

From: Susan McAnally, Department of State Lands

Re: Montana's Federal Coal Production and Total Coal Production

Date: January 6, 1980

The following are the coal production figures you requested from the State Land Department:

	Federal Coal Production in Montana*	Total Coal Production in Montana**
1972	1,176,662	7,944,815
1973	1,577,407	10,441,844
1974	4,135,953	13,555,150
1975	9,622,659	22,087,188
1976	10,308,249	26,180,671
1977	10,559,539	27,402,400
1978	8,691,222	26,680,174
1979	8,570,513	32,453,702
TOTALS	54,642,204	166,745,944

*Royalty Count Files, USGS Conservation Division, Billings, MT.
**Montana Department of Labor and Industry, Worker's Comp. Div., Bureau of Safety and Health, Helena, MT.

c: Brace Hayden

lw

AN EQUAL OPPORTUNITY EMPLOYER

OVERVIEW OF PROCESS AND PROBLEMS WITH STATE AND FEDERAL COAL LEASING PROGRAMS

I. Federal coal leasing

A. Prior to 1971 federal coal was leased to any applicant who requested it, consequently a tremendous amount of federal coal was leased for speculative purposes. For instance, in 1971, 91% of all federal coal leases were not producing any coal; moreover, 66% of all leases were held by 15 leaseholders. Since so much coal was being practically given away, and used for speculation, the Department of the Interior suspended all action on coal leases. This moritorium has continued to the present time with the only coal leases being those necessary to maintain production at present mines.

B. In order to better plan for coal leasing, DOI initiated its Energy Mineral Activity Resources System (EMARS) program. The EMARS process required the Bureau of Land Management to accept coal industry "nominations" for areas to lease. The areas identified by the nominations would be further studied and ultimately leased. Because DOI failed to prepare a programmatic EIS on its EMARS program, a federal district court enjoined implementation of that program until an EIS was prepared (NRDC v. Hughes). DOI could lease coal meeting "short term criteria" which were intended to insure that current coal production was maintained, would prevent waste of federal coal, which would be mined for sound environmental reasons, and the like.

C. DOI then undertook the development of a new federal coal leasing program instead of preparing a programmatic EIS. This program, found at 44 Fed. Reg. 42584 (July 19, 1979) incorporated the land use planning requirements of the Federal Land Policy and Management Act ("FLPMA") and the Coal Leasing Amendments Act of 1976.

1. The process now requires the BLM to develop a land use plan for federal lands; the plans are called either a Management Framework Plan ("MFP") or a Resource Management Plan ("RMP").

a. An MFP is a plan drafted pursuant to BLM planning guidelines. They were originally a part of the EMARS program.

b. An RMP is a plan prepared pursuant to FLPMA; since regulations implementing FLPMA were not promulgated until 1979, BLM uses the pre-existing MFP's for coal leasing purposes.

2. The Department of Energy sets regional coal production "goals." DOI assesses the "goals" and determines what percentage of the "goal" should be met with federal coal. DOI then sets the federal coal production target for each region.

3. "Regional coal teams" assess the areas identified for leasing by the MFP or RMP and develop a list of specific tracts which should be leased. These tracts are offered for lease until the regional production target is met.

4. An EIS is to be prepared for each RMP, not for an MFP, as well as for each specific lease (the EIS for the specific lease is called a Technical Evaluation and Envnironmental Assessment ("TE/EA") which is an abreviated EIS).

D. Problems

1. BLM continues to hehave as if its exclusive mandate was to lease coal. The Redwater MFP covering four counties in eastern Montana, is not a land use plan but is a coal lease plan.

2. DOE's production goals result from erroneous models, thus they project a greater need for coal than actually exists.

II. State coal leasing

A. The State of Montana through its ownership of two sections in every township in Montana owns a considerable amount of coal. By 1971 56,000 acres of state coal lands had been leased. As with federal leases, state lands were not being developed, in fact as of today only a few sections have been mined. Consequently in 1971 the state put a moritorium on further leasing.

B. The procedure to lease state coal is for the potential lessee to approach the Department of State Lands and simply request a certain tract be put up for lease. The Department then offers the tract for lease on a competitive basis, however generally there is only one bidder at the auction. A Preliminary Environmental Review is generally the only environmental assessment made.

C. In 1971 the state received only 17¢ per ton of coal mined, while the mining company received upwards of $4 for that ton of coal. In 1975 the Legislature imposed a 10% royalty rate.

D. The moritorium on state coal leasing has been lifted. Recently a section of state land was offered to Western Energy in Rosebud County.

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240

Exhibit IV-4
1373 (822)

JUL 16 1981

Memorandum

To: Ms. Jerrie Cohen
Montana State Office

From: Jerry A. Fries
Chief, Branch of Financial Reports and Operations

Subject: Commodity breakdown for State of Montana from Fiscal Year (FY) 1975 through one-half Fiscal Year 1981.

In reply to your telephone request, July 9, 1981, following is a table with the commodity breakdown for the State of Montana from FY 1975 through the first half of FY 1981:

	Oil & Gas	Coal	Phosphate	Geothermal	Other	Total
FY75	$4,207,504	$389,327	$10,712	$	$ 60	$4,607,603
FY76	4,116,108	574,458	12,661		17,722	4,720,949
FY77	5,828,376	895,790	16,687	10,208	-3,860	6,747,201
FY78	6,434,988	778,453	42,781	5,344		7,261,566
FY79	7,073,634	554,782	61,169			7,689,585
FY80	8,716,360	777,620	53,871			9,547,851
1/2FY81	6,032,855	939,263	27,053			6,999,171

If you need additional information, please contact Richard Plunkett on (202) 343-4431.

Jerry A Fries

Federal Reclamation Fees

The Surface Mining Control and Reclamation Act of 1977 requires operators to pay the following fee to the Department of the Interior (30 USC 1232):

35¢ per ton of coal produced by surface mining

15¢ per ton of coal produced by underground mining

The act provides that 50% of the fees collected be held to the credit of the state or Indian reservation in which the coal was mined. The state or tribe may use this money when:

1. the state governor or tribal leader certifies that the criteria established in 30 USCS 1232(g)(2) have been met; and
2. the Department of Interior approves the expenditure.

From 1977 through September 30, 1980, $13,180,674 was deposited to Montana's credit. Approximately $1.2 million has been deposited in each succeeding quarter, raising the fund balance for Montana to about $16.8 million. To date, the state has received authority to spend only $273,926 of these funds.

The Crow Indian tribe has received credit for $2,125,837 as its share of reclamation fees collected from coal mined on its reservation.

States may also receive reclamation grants from the 20% share of the reclamation fees retained by the Department of Interior. To date, Montana has received 8 reclamation grants totalling $688,968.

Thus, Montana has received spending authority for $962,894 of the $33,861,348 in reclamation fees collected on coal mined in the state.

Sources: Dick Juntunen
Reclamation Division
Department of State Lands
449-4560

Stan Ausmus
Reclamation Office
Department of the Interior
Denver, Colorado
303-837-5918

MEMO

To: Bill Christiansen, Attorney General's Office

From: Brace Hayden

Subject: Excess Coal Production Capacity

Date: February 25, 1981

Below is a summary of excess coal production capacity for the five large coal companies in Montana. The figures presented represent the "slack" in current production that could be taken up immediately by increased orders under existing contracts or by new contracts.

The information given is "ball park", as far as accuracy is concerned, due to the many unpredictable variables associated with the mining, sales, and shipping of coal. Many of the company officials' answers were qualified by the citing of these unknown factors. However, it was generally agreed that much more coal could be sold than is presently sold if the "right contract" were in hand and permitting and other difficulties could be minimized.

WESTERN ENERGY CO. (Art Neill)

Excess Capacity = 0 under current permit conditions. Capacity could equal 3½ million tons per year if permitting problems, such as the alluvial valley floor question in Area E, had not come up. (Also, with the right contract, it has been estimated that the Dominy Project alone could produce 5 million tons of lignite per year, as an example of opening up new areas).

WESTMORELAND RESOURCES (Ralph Moore)

Excess capacity = 5 million tons per year over the next 20 years, assuming permits could be obtained as needed.

DECKER COAL COMPANY (East and West Pits, Jack Reed)

Excess capacity = 5 million tons per year from the existing operations. This could be greatly enlarged by opening up new areas, building new facilities, etc. Only the lack of the right contracts prevents this, barring permitting, transportation problems, etc.

PEABODY COAL CO. (Tracy Hendricks)

Excess capacity = at least one million tons per year.

(Leonard Shearer never called back; I don't know what his estimate would have been).

SPRING CREEK COAL CO. (Mike Eidlin)

Mike said to talk to Mike Clark, Mine Manager, (who never called back after two calls), but said he thought that they were pretty much up to capacity. Therefore, excess capacity = 0.

GH:lw

Exhibit V-

United States Department of Agriculture
Economics and Statistics Service
Economic Development Division
Dept. of Agr. Econ. & Econ.
Montana State University
Bozeman, MT 59717

Compliance Coal: 6/10 of 1% or Less Sulphur Does Not Require SO_2 Scrubbers to Meet Standards

February 18, 1981

Montana + Wyo Coal Not Having Monopoly on Low Sulphur Coal

SUBJECT: The distribution of compliance coal reserves

TO: Bill Christianson

There is an approximate 85 years supply of low-sulfur compliance coal in the United States located outside the boundaries of Montana and Wyoming according to a 1976 publication of Argonne National Laboratory. That report, drawn from USGS data on coal reserves, lists a total of 163,822 million tons of compliance coal in the United States. Although 64 percent of the compliance coal reserves of the U.S. are located in Montana and Wyoming (104,365 million tons), approximately 60 billion tons are located elsewhere. At a consumption rate of 700 million tons per year in the U.S., that 60 billion tons would last for about 85 years.

Very large quantities of low-sulfur coal are scattered throughout the U.S. despite the fact that the largest proportion is in Montana and Wyoming. In Appalachia, for instance, 71 percent of Virginia coal, 44 percent of West Virginia coal, 30 percent of Kentucky, and 20 percent of Tennessee coal is compliance coal. Alternative sources of western compliance coal are in Colorado where 71 percent of reserves are compliance; Utah where 76 percent of the coal is compliance; and New Mexico where 98 percent of the coal is compliance.

The definition of compliance coal is its sulfur content in relation to the Btu's that will meet Federal New Source Performance Standards existing from 1971 to 1977 without flue gas desulfurization, and that will meet the 1979 NSPS for 70 percent emission reduction. That standard places emphasis on the sulfur content of the coal that is burned regardless of the emissions resulting from the burning of the coal. For instance, it is a well known fact that the sulfur contained in lignite coals is not emitted as flue gases entirely, but that a large proportion of the sulfur content of the coal is contained in the waste slag. Minor changes in EPA standards, therefore, would make a much larger proportion of the coal supply of the United States compliance coal. That is especially true of Texas which has over 3 billion tons of lignite that is within the State.

A 382 year supply of reserves of coal are in fields outside Montana and Wyoming if coal that meets 90 percent BACT sulfur emissions reduction under current NSPS is considered. Again, any technology progress such as fluidized bed combustion that contains the sulfur in the slag could allow higher sulfur coal to be burned if the NSPS were altered to measure emissions rather than the sulfur in the coal before it is burned. Or, MHD would more than double efficiency and also contain sulfur emissions, but wouldn't count under NSPS.

January 15, 1981

INTRODUCTION

The price of Powder River coal and consequently electricity rates in regions using that coal will be affected much more by (1) the extent and timing of renewed Federal coal leasing, (2) environmental regulation, and (3) railroad rates, than by Montana and Wyoming severance taxes.

WHAT HAS LIMITED MONTANA'S COAL DEVELOPMENT?

The Coal Leasing Moratorium Limited Development

The development of coal reserves in Montana, in particular, has been severely limited by a moratorium on Federal leasing. A flurry of speculative interest in coal reserves in the late 1960s led some State Directors of the BLM to suspend coal leasing. That was followed by a national moratorium that has remained in effect to this day. The supply of new Federal coal was fixed, the price of private leaseholds increased, and only very large leaseholds with access to railroads could service the long term contracts with certainty. Westinghouse had just been stung by making long term uranium delivery contracts without having the reserves to back them up. That lesson was not lost on coal suppliers or utilities.

The more rapid development of coal resources in Wyoming than in Montana in the 1970s is a simple function of the amount of coal that has been leased and was available to sustain long term contracts via existing railroad lines. Acres leased in Montana was 6/100ths that leased in Wyoming in 1977. In Wyoming in 1977, 96 Federal leases covered 214,821 acres, and 1,568 State leases covered 1,235,229 acres (Cannon, 1978; Bender, et. al., 1980). The

See Pg 2 for Mont. Data

difference between coal resource availability for long term supply contracts in Wyoming and Montana is striking. Montana had 17 Federal leases outstanding in 1977 covering only 36,293 acres, and only 51,947 leased State acres.

Federal leasing is important to future coal supplies because the most mineable reserves are Federal and are concentrated in areas with undeveloped transportation linkages. Strippable coal is contained within 44 counties of the Northern Great Plains region. But only 13 contain subbituminous reserves. Of those subbituminous reserves, 93 percent is located in only four counties -- Campbell, Big Horn, Powder River, and Rosebud (Bender, 1980). Powder River County, Montana alone contains more reserves than any Appalachian State, but it is inaccessible to transportation. The certainty of future development through leasing is necessary for transportation links to be developed and operated economically.

The renewed leasing of Federal coal in blocks large enough to support long term contracts and near enough to existing railroad lines to be competitive would most certainly tend to hold coal prices down and increase competition in the Powder River Basin markets.

WHAT HAS AFFECTED LOW SULFUR COAL DEMAND THE MOST?

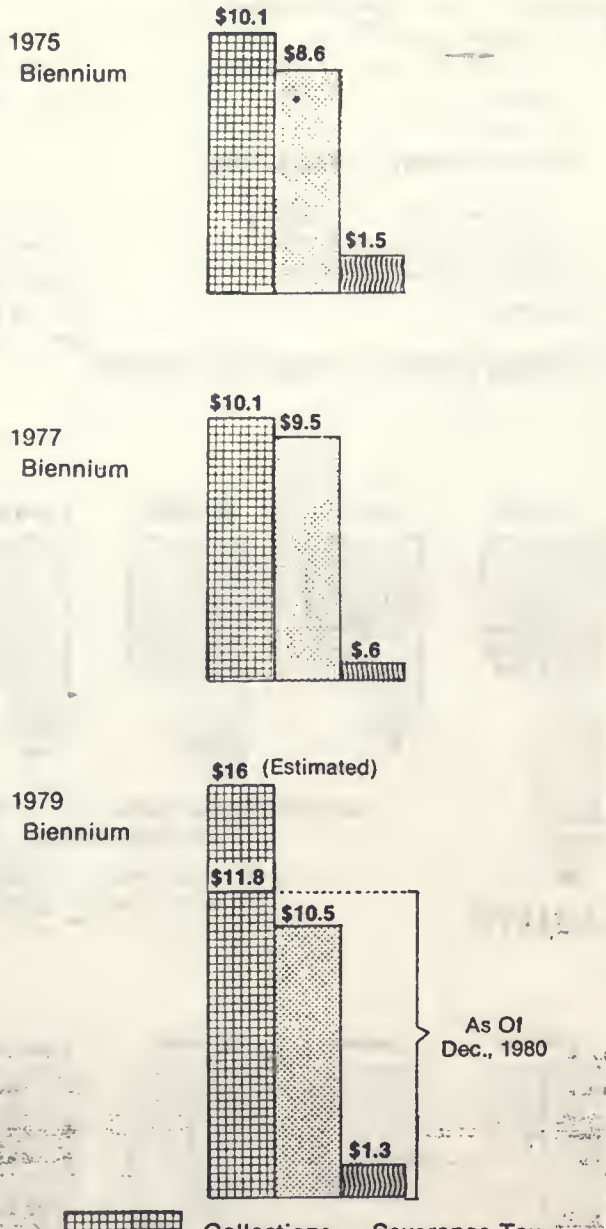
Environmental Regulations First Heightened then Decreased Demand

The rate of growth of Powder River coal development also is the result of demand for coal, and demand for low sulfur coal is a function of environmental law and regulations.

The initiation of Powder River coal development in 1970 was the direct result of the Clean Air Act of 1970. New coal fired facilities could meet sulfur emissions standards resulting from that Act (1.2 lbs. SO_2 per million

Local Impact Assistance Program

In Millions of Dollars



1,000 copies of this publication were produced at a unit cost of 10¢ per copy for a total printing and assembling cost of $100 00

Creative Press
Helena, Mt.

Coal Board Grants — 1975-1980

COLSTRIP ELEMENTARY SCHOOL	$ 961,734 08
COLSTRIP SCHOOL EQUIPMENT	93,969 97
COLSTRIP HIGH SCHOOL	586,580 00
ASHLAND ELEMENTARY SCHOOL	800,000 00
ROSEBUD SCHOOL DISTRICT	465,000 00
ROSEBUD COUNTY PLANNING	32,000 00
FORSYTH ELEMENTARY SCHOOL	2,449,428 81
FORSYTH HIGH SCHOOL	27,000 00
FORSYTH WATER TREATMENT	615,000 00
FORSYTH WASTEWATER PUMP	150,000 00
FORSYTH SEWAGE	25,000 00
COLSTRIP SEWAGE TREATMENT	538,000 00
ASHLAND WATER & SEWER	71,080 00
ROSEBUD COUNTY JAIL	100,000 00
HARDIN SEWER & LAGOON	266,475 00
HARDIN CAPITAL EQUIPMENT	128,154 76
LODGE GRASS CAPITAL EQUIPMENT	125,250 00
HYSHAM WATER DISTRIBUTION	388,440 00
16TH JUDICIAL DISTRICT	24,629 23
LODGE GRASS WATER LINE	171,556 18
FORSYTH CAPITAL EQUIPMENT	154,682 53
HARDIN ELEMENTARY SCHOOL	2,041,647 99
HARDIN HIGH SCHOOL	1,167,999 99
TREASURE CO. HEALTH NURSE	9,355 00
SAGEBRUSH LIBRARY	51,272 00
MILES COMMUNITY COLLEGE	1,526,455 52
COLSTRIP STREET CLEANER	82,102 56
COLSTRIP WATER TREATMENT	656,600 00
DAWSON COUNTY CENSUS	11,108 34
McCONE COUNTY PLANNING	42,000 00
HARDIN WATER SYSTEM	260,900 00
HARDIN SEWER TRUNK MAIN	816,978 55
LAUREL PUBLIC SCHOOLS	228,825 00
HYSHAM SEWER SYSTEM	56,360 00
LAUREL WATER TREATMENT	583,772 00
FORSYTH MUNICIPAL WATER	81,331 71
FORSYTH CAPITAL EQUIPMENT	44,273 06
COLSTRIP ELEM. SCHOOL EQUIP.	38,544 70
ROSEBUD COUNTY SEWER	49,400 00
TREASURE CO. PATROL CAR	6,667 31
ASHLAND VOLUNTEER FIRE DEPT.	44,741 00
LODGE GRASS CAPITAL EQUIPMENT	60,619 95
FORSYTH SOLID WASTE	203,934 50
TRI-COUNTY SOLID WASTE PLAN	289,859 56
BIG HORN COUNTY COURTHOUSE	416,000 00
HYSHAM CAPITAL EQUIPMENT	49,982 00
CUSTER COUNTY WATER & SEWER	358,000 00
FORSYTH ELEM. SCHOOL/CONST. & EQUIP.	193,230 00
FORSYTH HIGH SCHOOL/CONST. & EQUIP.	291,590 22
HARDIN CAPITAL EQUIPMENT	57,388 00
TREASURE COUNTY PLANNING	17,000 00
COLSTRIP COMMUNITY SERVICES FACILITY	324,526 00
FORSYTH CAPITAL EQUIPMENT/TRUCK	26,278 70
BIG HORN COUNTY RURAL FIRE EQUIP.	75,000 00
ASHLAND WATER & SEWER BOND	77,108 00
FORSYTH SCHOOLS/REMODELING & EQUIP.	35,000 00
TREASURE COUNTY SHOP COMPLEX	389,833 00
HARDIN CAPITAL EQUIP./BLACK TOPPER & TRUCK	15,877 60
LAME DEER SCHOOLS/COMPREHENSIVE PLAN	18,420 00
MILES CITY PUBLIC LIBRARY	82,600 00
CITY OF BILLINGS/PLANNING GRANT	50,000 00
LAUREL SEWER LINE EXTENSION & EQUIP.	231,419 00
HARDIN WATER LINE REPLACEMENT	469,353 00
HYSHAM WATER RENOVATION	101,900 00
BIG HORN COUNTY/LAW ENFORCEMENT COMM. EQUIP.	38,900 00
ASHLAND SEWER LINE REPAIR	101,400 00
FORSYTH H.S./REMODELING & ADDITIONS	1,750,000 00
COLSTRIP SCHOOLS/EDUCATIONAL FACILITIES PLAN	34,500 00
COLSTRIP FIRE TRUCK	51,750 00
DCA/FINANCIAL ASSESSMENT SYSTEM	44,000 00
CITY OF GLENDIVE/STREET PAVING	38,516 00
CITY OF RED LODGE/COMPREHENSIVE PLAN	7,382 00
ROSEBUD CO./LAW ENFORCEMENT EQUIP. & SERVICES	54,961 84
SPRING CREEK CO. WATER & SEWER/FACILITIES CONST.	200,000 00
ROSEBUD COUNTY/MENTAL HEALTH SERVICES	25,000 00
HARDIN STORM SEWER SYSTEM IMPROVEMENT STUDY	10,000 00
LAME DEER SCHOOLS CONSTRUCTION	450,000 00
ROSEBUD COUNTY/GRAVEL CRUSHING EQUIPMENT	189,249 00
COLSTRIP ELEM. SCHOOL/NEW CONSTRUCTION	1,665,000 00
COLSTRIP HIGH SCHOOL/NEW CONSTRUCTION	3,367,833 00
FORSYTH CITY HALL	225,000 00
ROSEBUD CO./EMERGENCY MEDICAL SERVICES RADIO	2,180 00
ROSEBUD CO./JUVENILE PROBATION OFFICER	54,000 00
DCA/IMPACT ASSISTANCE FIELD OFFICE	50,000 00
ROSEBUD COUNTY/RSID #74/NEW COLSTRIP TOWNSITE	675,000 00
TOWN OF HYSHAM/BUILDING ADDITION	21,291 77
TREASURE COUNTY/LAW ENFORCE. VEHICLE & SERVICES	27,354 00
BIG HORN COUNTY/NURSING HOME CONSTRUCTION	250,000 00
TREASURE COUNTY/CAPITAL EQUIPMENT	35,000 00
ROSEBUD CO. RSID #74/TRANSMISSION WATER MAIN	103,725 00
ROSEBUD CO. RSID #74/WATER STORAGE RESERVOIR	312,925 00
ROSEBUD CO. RSID #74/CONSOLIDATED WATER & SEWER	404,850 00
GRAND TOTAL	$30,048,959 00

EXHIBIT VI 1

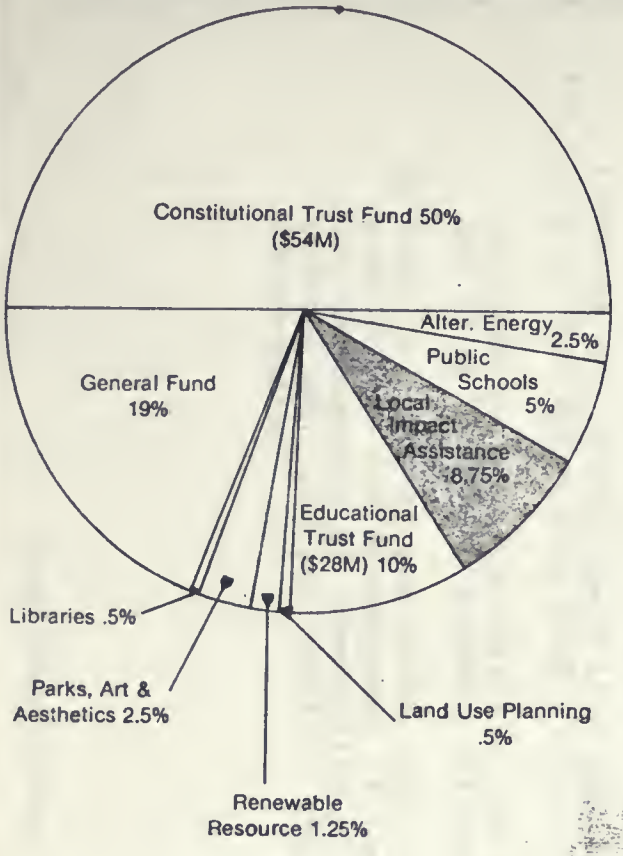
Local Impact Assistance GRANT PROGRAM 1975 — 1980

Purpose:

"To Assist Local Governmental Units Which Have Been Required to Expand the Provision of Public Services as a Consequence of Large Scale Development of Coal Mines and Coal Using Energy Complexes — 90-6-201 MCA."

Administered By The Montana Coal Board

Montana's Severance Tax Distribution Formula



Severance Tax Income Projections*

	FY 81	FY 82	FY 83
Total	$80,251,710	106,565,070	$129,376,980
Const. Trust 50%	40,125,855	53,282,535	64,688,490
Gen. Fund 19%	15,247,825	20,247,363	24,581,626
Local Impact 8.75%	7,022,025	9,324,444	11,320,284
Edu. Trust 10%	8,025,171	10,656,507	12,937,698
Pub. Schools 5%	4,012,586	5,328,254	6,468,849
Alt. Energy 2.5%	2,006,293	2,664,127	3,234,425
Ren. Res. 1.25%	1,003,146	1,332,063	1,617,212
Parks 2.5%	2,006,293	2,664,127	3,234,425
Planning 0.5%	401,259	532,825	646,885
Libraries .5%	401,259	532,825	646,885

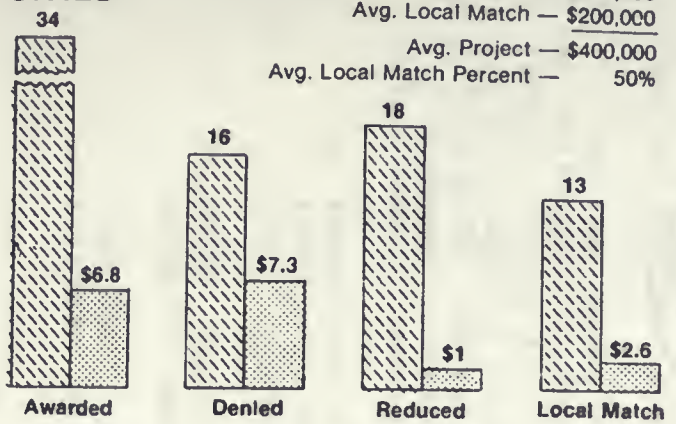
Source: Office Budget Program Planning.

Summary of Coal Board Activity By Eligible Governmental Unit

Through Dec. 1980 - In Millions of Dollars

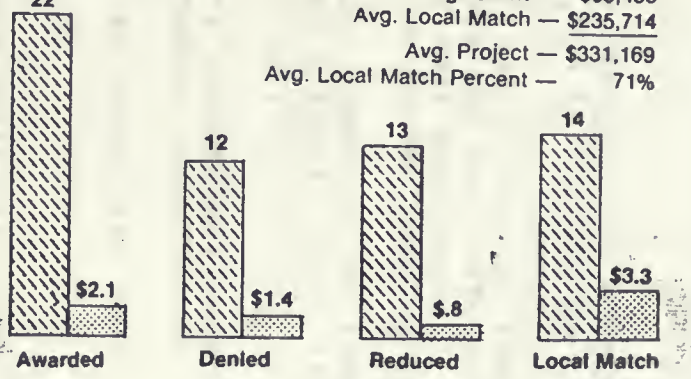
CITIES

Avg. Grant — $200,000
Avg. Local Match — $200,000
Avg. Project — $400,000
Avg. Local Match Percent — 50%



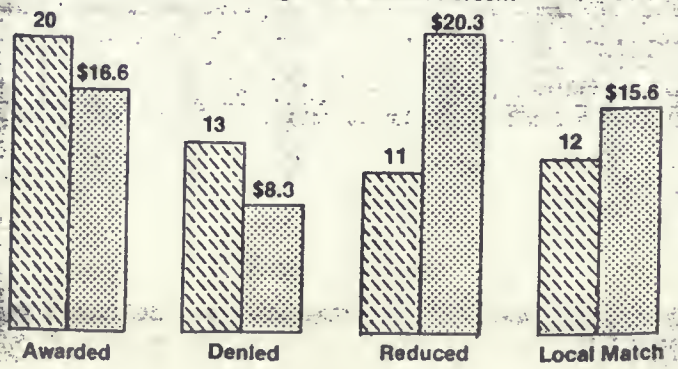
COUNTIES

Avg. Grant — $95,455
Avg. Local Match — $235,714
Avg. Project — $331,169
Avg. Local Match Percent — 71%



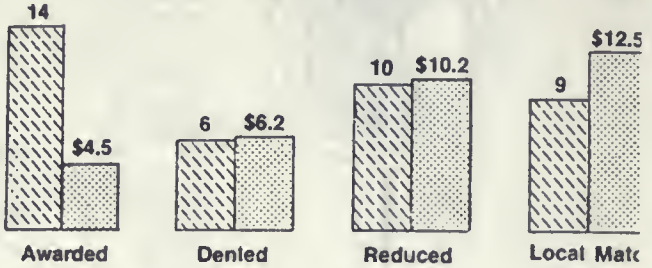
SCHOOL DISTRICTS

Avg. Grant — $830,000
Avg. Local Match — $1,300,000
Avg. Project — $2,130,000
Avg. Local Match Percent — 61%



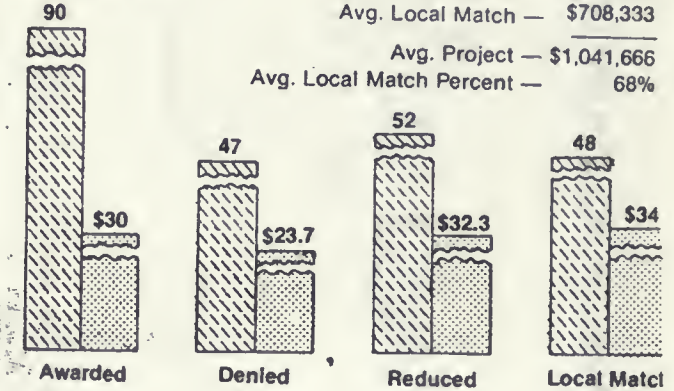
SPECIAL DISTRICTS & STATE AGENCIES

Avg. Grant — $321,42
Avg. Local Match — $1,388,88
Avg. Project — $1,710,31
Avg. Local Match Percent — 81%



TOTALS

Avg. Grant — $333,333
Avg. Local Match — $708,333
Avg. Project — $1,041,666
Avg. Local Match Percent — 68%



Local Impact Assistance Funds*

	Dec. - 1980
Collected	$32,176,808
Earned Interest	1,643,000
Grants to Local Government	30,048,959
Reversion to Ed. Trust Fund	2,966,829

Educational Trust Fund

Balance	$28,190,172
Earned Interest	3,237,606
To Office of Pub. Instruction	2,596,445
To Board of Regents	865,509

*Source — Dept. of Community Affairs/Centralized Services

DEPARTMENT OF HIGHWAYS

TED SCHWINDEN, GOVERNOR

2701 PROSPECT

STATE OF MONTANA

HELENA, MONTANA 59620

July 31, 1981

Bill Christenson
Office of the Attorney General
State Capitol
Helena, Montana 56920

RE: Estimate of Coal Impacts

Dear Mr. ~~Christenson~~ Bill:

Earlier today you contacted Gene Huntington confirming an estimate of $150,000,000 in impacts on highways as a result of coal development. The Department of Highways has reviewed its records and it appears that the $150,000,000 estimate does not overstate the potential costs for highways impacted by coal development. I have listed below some of the costs we do have estimates for:

A. Identified highway needs on the federal aid system in the Colstrip area. (1976 study updated to current costs)	$108,000,000
B. Grade separations (crossing improvements) needed to accommodate coal trains.	$ 38,800,000
C. Coal haul roads as identified by a federal study.	$ 12,800,000
TOTAL ESTIMATES AVAILABLE	$159,600,000

Costs of coal development that can be predicted but for which no estimates have been prepared include:

A. Maintenance costs resulting from increased traffic and from increased highway mileage.

B. Induced needs or the needs and costs that will result from the development of new communities. The development of communities along state highways creates many traffic problems that must be accommotated.

If you would like more detailed information on this matter, please contact me or Gene Huntington.

Sincerely,

Gary J. Wicks
Director of Highways

GJW:GH:cv
cc: Bob Champion
Jim Hahn

MAY, 1978

An early, ardent advocate and present defender tells...

Why a 30% coal tax?

by
Thomas E. Towe
State Senator, Billings, Mt.
Chief Sponsor of
Montana Coal Tax Law, 1975

Montana's 30% coal tax is under attack. It is being challenged in Court and it is being challenged in Congress. Let us look at the tax and the reasons for its existence.

The Effective Rate

The effective tax rate is not 30% but 22.26% of the invoice price of coal F.O.B. mine. Coal companies are allowed to deduct from the invoice price all federal, state and local production taxes before applying the 30%. Additionally, 45% of the gross value of the coal less taxes is included in the taxable valuation of each county against which counties and school districts levy property taxes. Finally, one-half of one percent is levied against coal as well as all other mined resources for the Resource Indemnity Trust Fund. All three taxes average approximately 27¼% of the invoice price of coal. That amounts to approximately $2.00 per ton or 10 cents per million B.T.U.'s.

The 7 principal customers of Montana coal—7 midwestern utility companies—pay considerably more for transporting the coal to their plants than they do for the coal itself. Sixty percent of the delivered price of the coal is in transportation. The Montana Production Taxes amount to 9.8% of the total delivered price of the coal.

Almost all coal mined in Montana is under long-term contract—20 to 30 years in length. These contracts provide automatic escalation clauses that allow the coal companies to pass the future amount of the increased tax burden on to their customers, the midwestern and southern utility companies. In turn, the utility companies passed their costs on to their customers through the respective Public Service Commissions. The net effect of Montana's Production Taxes is approximately 2% of the electric bill of the customers who purchase electricity from the midwestern and southern utility companies.

In fact, all but one of the southern major midwestern utility companies which purchase Montana coal blend Montana coal with other coal. The net effect is a cost in their electric residential customers of approximately ¼ths of 1% for Montana's total Production Taxes.

Yet those same states all collect a sales tax on that same electricity. For example, Illinois collects 5% under its Public Utility Tax Act. Minnesota collects 4%, Iowa 3%, Indiana 4%, Wisconsin 4%, and Michigan 5%. Thus, these states are collecting at least twice as much on the coal product as we in Montana and they don't have any of the impacts, the reclamation problems, and other residual problems to deal with.

Reasons For A High Mineral Severance Tax.

A number of reasons can be advanced for a high mineral severance tax.

I

The natural wealth of a state should confer some benefit to that state.

A sovereign should share in the natural wealth from its boundaries. Once the resource is depleted and the wealth is gone, it cannot be renewed and the State has lost forever some degree of its economic viability. Unlike a manufacturing process or agricultural process, its wealth cannot be renewed.

Montana is particularly susceptible to this argument. Its nickname, the Treasure State, referred to a fabulous wealth in hardrock minerals. The value of the treasure mined from the "richest hill on earth" in Butte between 1880 and 1950 is staggering. Now, however, the boom is over and the bust is in full force. Butte is but a pitch of its original size and presents an enormous urban renewal problem. Decay of the city center is probably irreversible. Essential services are expensive and the mill levy is higher than in any other major city in Montana.

Other than a gigantic hole in the ground and a massive urban renewal problem, Montanans have very little to show for the fabulous treasure that once existed in Silver Bow County. The fabulously wealthy copper kings did not even leave vestiges of their wealth in our state. Instead, the Corcoran Art Gallery in Washington, D.C., the Law School of the University of Virginia and Stanford University all received major benefits.

Although that treasure is nearly gone with very little to show for it, our treasure in coal is just now being fully appreciated. According to U.S. Bureau of Mines statistics Montana has something like 25% of the nation's coal supply and 10% of the world's coal supply. With the growing demand for coal world-wide there can be little doubt that our "black gold" may prove to be more valuable than all the other minerals for which Montana was named the Treasure State. Only this time, because of our 30% coal tax, we will have something to show for that fabulous treasure once the coal is gone.

II

A review of other coal areas in the United States suggests that coal and poverty go hand in-hand.

Appalachian states of West Virginia, Kentucky, and Tennessee are known for two things: coal and poverty. There is much evidence to suggest a genuine connection between these two items. For example according to a recent study the coal companies controlled 34% of all the land in Morgan County, Tennessee but they paid only 3.6% of all property taxes in that county. The same conclusion is supported by the tax officials in Kentucky. We in Montana are determined not to let this happen in the coal fields of eastern Montana.

III

The governments need the money.

This need can be broken down into three separate categories.

First there is a need for funding to adequately finance government participation and supervision of the development itself. For example, in Montana the Strip Mine Coal Conservation Act the Strip and Underground Mine Siting Act, and the Montana Strip and Underground Reclamation Act are all administered by the Department of State Lands. Additionally, the federal Surface Mining Control and Reclamation Act of 1977 places certain requirements on the state once the state's permanent regulatory program is approved. The burden on the state in reviewing and granting permits, reviewing mining plans, reviewing and approving reclamation plans, inspecting the mines, and doing all the other things required of those acts is considerable.

The cost to the state far exceeds the $50 application fee that is received for each new permit application. For example, on the application for the north extension of the West Decker Mine, the Department of State Lands assigned five people each of whom worked one month on the application not counting the Administrator's time and the office overhead. The Reclamation budget for the Montana Department of State Lands exceeds $400,000 per year and the budget for the next two fiscal years contemplates nearly $6 million a year for coal related administration and reclamation matters. Although some of this funding is being provided by the federal government, as mining activity increases the costs will undoubtedly increase to the state.

In addition, there are the administrative costs in administering the Plant Siting Act which comes into effect before permits are granted for the construction of any major steam generating facility, coal gasification plant, or other utility or energy related plant as well as all electrical transmission lines and pipe lines. Although the filing fees are high and are intended to pay for all the governmental costs of reviewing the applications, the experience of the Department of Natural Resources and Conservation, which is the lead agency administering the Plant Siting Act in Montana, is that the filing fee rarely covers all the costs. The $1.2 million application fee paid by the utility companies who applied for a permit to construct Colstrip Units 3 and 4 was far less than the money spent processing that application. Currently approximately $200,000 per year is budgeted out of the general fund to take care of energy matters in the Department of Natural Resources and Conservation in Montana.

Finally, the administration of Air and Water Quality Acts require considerable administrative expense for the Department of Health and Environmental Sciences in Montana. Constant monitoring takes place at the mine sites and at the utility sites. An allocation to coal development and coal related environmental health problems has not been attempted but total environmental health budget including air quality, water quality, occupational health matters, and solid waste disposal receives a general fund expenditure of approximately $1 million per year. Again it is certainly appropriate that some funding be made available to the state general fund to cover these added expenses and burdens of state government caused by the coal development itself.

The second category of government need includes the local impact costs. The sleepy little farming community of Colstrip increased in population from 200 to 2,000 almost overnight when the coal boom of the early 70s first hit Montana. Now with the approval of Colstrip Units 3 and 4, the population has increased from 2,000 to 3,000 in the last six months and is expected to hit a peak of 8,500 in 1981. The strain on government services is enormous. The school

CONTINUED TO NEXT PAGE

severance taxes?

NO

by SEN. THOMAS TOWE

sent their views. Minneapolis Mayor Donald M. Fraser, who favors the legislation, is a former U.S. congressman (1963-1978) and state legislator. Sen. Thomas Towe, who opposes the bills, has served in the Montana legislature since 1971 and was the chief sponsor of that state's coal severance tax. Both men are Democrats and attorneys.

UTILITY COMPANIES BUYING Montana coal have persuaded a number of congressmen and senators to urge a limit of less than 10 percent (12.5 percent after reduction by taxes) on severance taxes collected by state and local governments. Under the thinly veiled guise of "consumer legislation" they have introduced legislation limiting the amount of coal taxes Montana and Wyoming can collect. The Montana and Wyoming taxes actually amount to 22.5 percent and 13 percent respectively. That is because all federal, state and local taxes are allowed as deductions before applying the statutory 30 percent and 17 percent rates.

The proposed federal limit is a cruel hoax. It has been, I submit, foisted onto Congress by the investor-owned utility companies who see an opportunity of gaining millions of dollars to split between themselves and the coal companies by avoiding the true costs of coal production.

The complicated long-term contracts between the Midwestern utility companies and their coal company suppliers would act as a very convenient shield to prevent any consumer from ever benefiting from such legislation. Utility companies have spent more than $800,000 so far this year lobbying for passage of this legislation.

The facade of justification for such legislation can be maintained only if proponents can establish that Montana and Wyoming are collecting more revenue from coal development than actual government costs. There is no factual basis or independent research for making such an assumption. Yet without it the proposed legislation amounts to nothing more than the economic exploitation of one part of our great nation by another part.

Montana Exploited

While mining companies extract millions of dollars of mineral wealth, much of which belongs to the public domain, for their own private profit, what happens above the ground is frequently of little or no concern to them. The huge wealth taken out of the "richest hill on earth" at Butte, Mont., did not stay in Montana. It went to corporate headquarters and bankers in New York City, to the Corcoran Art Gallery in Washington D.C., and to the University of Virginia and Stanford University.

The people and taxpayers of Montana were left with:

(1) the supervision of reclaiming one of the largest open pits in the world—a pit which has engulfed a good part of downtown Butte; and

(2) a gigantic urban renewal problem, namely, what to do about a decaying city of 23,000 people that once had a population of more than 100,000.

With the advent of coal development in eastern Montana, the people of Montana are determined this exploitation of their wealth without any provision for the problems of the future shall not happen again.

Towe

Would anyone seriously deny that large companies, particularly mining companies, have never been required to pay the full costs of government services demanded by their employees and by their development? One need only look at the impoverished areas of coal-rich Appalachia.

Although everyone expects a full line of government services such as law enforcement, fire protection, city water, city sewer, streets, roads and good schools, no one seems to connect these enormous costs with that which caused them, namely, the mining or other development that brought in all of the people. This situation is particularly aggravated where mining takes place at least 50 or 60 miles from the nearest town or shopping community.

Assess True Costs

In Montana, and to a lesser extent in Wyoming and North Dakota, the people are determined to put the true costs of government services on the very people who benefit from exploiting the natural resources. Additionally, in each state a provision is made to take care of the problems of the future to prevent more Butte situations. The method: a severance tax that is paid by the coal companies and eventually the consumers who are able to obtain cheap power because of the unusually low cost of western coal. Perhaps for the first time ever, large coal companies are required to pay their full way.

Let us look at some specific costs.

Although coal companies must do their own reclamation work at their own expense, some costs are associated with the administration of the laws governing the coal mines. For example, in Montana the Strip Mine Coal Conservation Act, the Strip and Underground Mine Siting Act, the Montana Strip and Underground Reclamation Act, the Plant Siting Act, the Water Quality Act, and the Air Quality Act

continued on page 43

TOWE
continued from page 39

all must be administered by state government. Each mining company application must be reviewed not only for reclamation plans but also to determine whether the particular land is too environmentally fragile or has important archeological or historical significance and should not be mined at all. To date not a single acre of Montana mined land has been released from its reclamation bond.

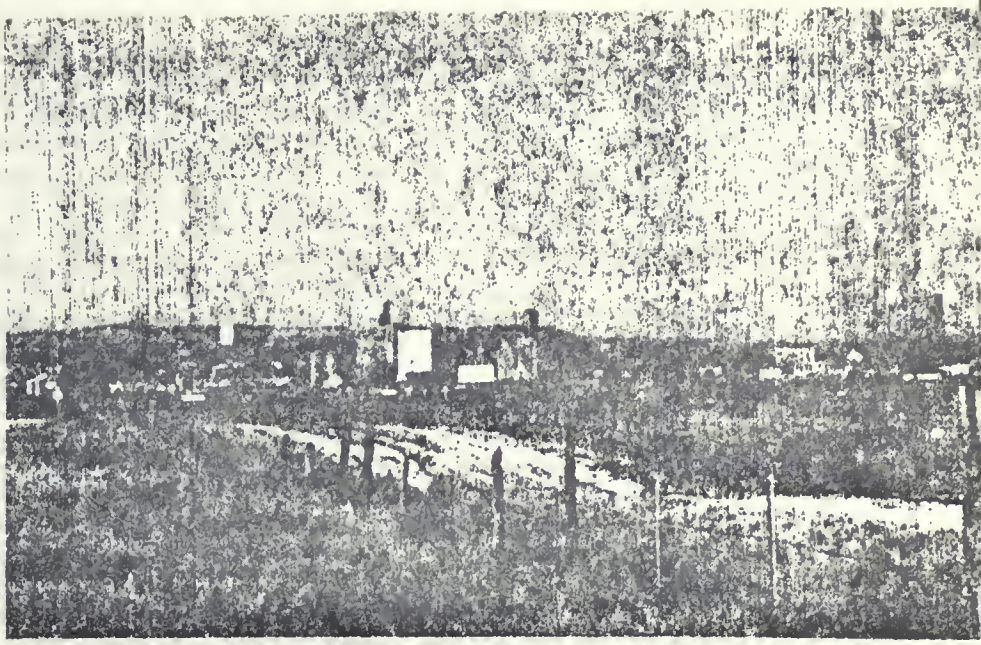
Although Montana receives some assistance from the federal Strip Mine Reclamation Act, the total budget for enforcement of all mine regulatory laws and environmental laws that affect coal was approximately $7.5 million per year during the last biennium. This is more than one-half of the amount of severance taxes Montana sets aside for the general costs of government ($12.8 million went to the general fund in fiscal 1979). Considering the size of coal companies' operations, $12.8 million (19 percent of total coal tax revenues in 1980 and thereafter) is not a large sum of money for them to contribute to the general cost of state government.

Impact Funds Inadequate

Of far greater significance is the impact cost. Over the first four years of our experience with the coal tax we set aside more than 27 percent of the total revenues ($37.5 million) for this purpose. Unfortunately this has not been sufficient. The costs of providing government services to the impacted areas is enormous.

In Montana most of the impact portion of the coal tax revenue is administered by the Montana Coal Board. It receives applications from local governmental units for impact assistance. During the May 1980 meeting of the Montana Coal Board, it received requests totaling $28.8 million. The board had but $3.3 million available at that meeting, and only $6.5 million available for the entire year. Obviously its decisions are based not on need but on available funds.

The Montana experience is not unique. The North Dakota Regional Environmental Assessment Program (REAP) conducted a $4 million study of impacts in North Dakota. Based on what it termed "modified level one development," the rate of development that seems most realistic, North Dakota will be $10 million short of meeting all impacts over the seven-year period covered by the study—even if *all* coal tax revenues are devoted to impacts, leaving nothing for the future.



Fraser backs his case with facts from a utility-funded study of strip-mining impact, which Towe says ignores basic costs and boomtown effects on communities such as Circle, Mont. — Photo by Michael Parfit

Similarly, a recent report by the Old West Regional Commission, comprised of the states most affected by coal development, identified capital needs in 12 Wyoming counties due to coal development and determined they would have a $27.6 million shortfall over the next five years, despite using all available federal, state and local funds to meet these impacts.

Furthermore, most all studies and all Montana Coal Board actions have failed to take into account some of the social problems associated with coal development. For example, studies show that a more transient population tends to have greater need for alcoholism services, mental health services and similar social services.

These social costs are immeasurable. Wally McRae, who ranches near Colstrip, stated that problem well:

"What is the cost to my children who attend a school where 70 percent of the students have used drugs in one form or another? What is the cost of having 23,700 tons of sulfur dioxide per year dumped on our agricultural lands from Colstrip plants 1 and 2?"

Road Costs Ignored

Finally, roads are perhaps the most costly of impacts. The strain on the existing road system by commuters and weekend shoppers has been enormous. Montana identified $64 million in road work that was required in the impacted area and has saved only $15 million for this purpose to date. At present we are not meeting the real needs of the people affected by coal development.

Most studies, including one by the Congressional Budget Office, have completely ignored the cost of roads. The study conducted by National Economic Research Associates (NERA) at the request of the utility companies, to support their position that 12½ % [illegible] fully inadequate.

Not only did it ignore roads, NERA also ignored mine construction employment, plant construction, plant operation and the enormous impacts of synfuel plants. The errors are compounded by lack of understanding of Montana employment and geography and of capital needs in impacted communities. Unemployed lumber workers in western Montana are unlikely to commute 350 miles to strip coal in eastern Montana. The capital investment in a rapidly growing community whose fortunes are likely to shift cannot be amortized over the usual 20-year period. The investment must be amortized in from three to five years.

I submit that everyone, including those of us who introduced and supported the coal tax bill in Montana, have underestimated the costs of impacts. One needs only contemplate the enormous costs that would come to Montana if we were to receive but one of the 30 synfuel plants scheduled for this country by 1992 in the administration's synfuel program. Just one plant in a remote area could bring an influx of 25,000 people. This would make the community the fourth largest city in our state.

continued on page 46

FRASER
continued from page 42

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Opponents of badly needed remedial legislation have sought to obscure this fundamental fact by charging that a federal limitation on the rising tide of state severance taxes is an unprecedented intrusion on states' rights. In fact, the very opposite is true. The federal government has in the past stepped in to impose tax limitations in those few instances where states have stretched their taxing powers to abusive levels which threaten interstate commerce. In 1973 Congress passed the Airport Development Acceleration Act, a program intended to stimulate the growth of U.S. air transportation. One provision included in this program was a prohibition on state imposition of taxes or fees on persons traveling by air. This prohibition was the result of a congressional finding that such taxes "inhibit the growth of the air transportation system." Its constitutionality has been upheld in the courts.

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By enacting hitherto unheard-of coal severance tax rates, Montana and Wyoming have acted in unprecedented fashion and made it imperative that the Congress intervene. They have started a trend toward bidding up coal severance taxes with no end in sight.

In 1975, when the Montana legislature passed the 30 percent tax, Wyoming's coal taxes were about 7 percent. They now total 17 percent and Wyoming Gov. Ed Herschler has twice attempted to add five more percentage points to Wyoming's tax. North Dakota's tax has grown steadily to an effective rate of about 20 percent. And New Mexico recently raised its coal severance tax for the third time in the last three years.

If the Congress does not restrain this process, coal severance taxes will continue to escalate to even more dangerous levels, and continue to balkanize our nation's progress toward the implementation of a coherent and workable national energy policy. ✹

TOWE
continued from page 43

There are presently four applications pending for preliminary funding for synfuel plants in Montana. The cost of government services to provide what will undoubtedly be demanded under these circumstances should be apparent. There is no way Montana or Wyoming could handle this situation if any of the current bills limiting our coal tax passes Congress.

To date federal assistance has been a joke. Assistance from Section 601 of the Federal Impact Assistance Act amounted to $286,000 in fiscal 1979 and $1,080,000 in fiscal 1980. Additionally we received $555,000 from our one-half of federal royalty income in 1979. Our coal board spends nearly 10 times that amount each year.

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Trust Fund Essential

And there are future costs. We must still accept on faith the fact that our semiarid lands can be fully reclaimed. We expect that they can be, but it will take much longer than originally thought—maybe 15 years.

Further, we still do not know the total impacts of the loss of groundwater in the coal fields. Vital to agriculture in eastern Montana, it may be lost forever. Removal of the coal "floor" may sweep away underground water that has sustained the farming and livestock industry.

We must also plan for the time when the coal is gone and the mining moves either to another area or leaves the state altogether. There will be tail-end impacts, such as school bonds and city bonds that remain unpaid. The economic dislocation of employees will be significant. The decay of the mining towns will bring additional costs to those communities which they will be unable to meet.

Future problems must be provided for now while revenue is available. We have tried to provide for these costs by setting aside a substantial portion of the coal taxes (50 percent in 1980 and thereafter) in a permanent trust fund which will always be available in the event future problems require additional funds. We look at that trust fund as the only thing that stands between us and our becoming an impoverished area when the coal is gone, as has happened to so many other coal-producing communities.

Tax Used Responsibly

Other uses of our coal tax include an alternative energy research and demonstration program, a renewable resource program, education, park acquisition and maintenance, and a very small portion for historic preservation, culture, and libraries. No part of our coal tax goes directly for tax relief (unlike Alaska's oil severance tax or Minnesota's taconite severance tax).

There are other arguments that can be advanced in opposition to any attempt to limit severance taxes on coal.

- First, it is unprecedented. Federal power has not previously been used to limit a state's *general* taxing authority.
- Second, unlike most Appalachian coal-producing states, neither Wyoming or Montana collects a property tax on coal while it is still in the ground. We wait to collect our tax until the coal is extracted and the quantity and value can be more easily determined. By necessity, therefore, the tax must be higher.
- Third, the burden of Montana's coal tax on the ultimate consumer is negligible. Assuming it is all passed onto the Midwestern or Southern electrical customer it amounts to an average of less than 1 percent of the ultimate utility bill (2 percent if only western coal is used by the utility company). By contrast all Midwestern states that use Montana coal have a sales tax of between 3 percent and 9 percent on the electricity generated from the same coal.
- Fourth, the bills single out two states for punitive action while at least seven other states which are collecting far more money in severance taxes remain unscathed. For example, Texas collects 20 times more revenue on oil than Montana collects on coal.
- Fifth, when reduced to the only fair common denominator, Btus, Montana compares very favorably with oil severance taxes per million Btus in Texas (8.84¢); New Mexico (10.76¢); Oklahoma (12.58¢); and Louisiana (16.58¢). In cents per million Btus our tax (9.97¢) is lower than three of those four states' severance tax on oil.
- Sixth, the effect of the bills could be avoided by levying a property tax on coal in the ground as most Appalachian states do, by levying a business and occupation tax as West Virginia does, and by burning all of the coal at the mine mouth as North Dakota does.

Dangerous Precedent

Congress probably does have the power to limit our coal severance taxes. To exercise such power would be extremely unwise. Not only would it allow other states to exploit natural resource without paying full costs of that exploitation (colonialism) but it would set an extremely dangerous precedent.

If Congress can reduce the tax on coal to produce cheaper energy for the rest of the nation, it can also limit the tax on oil to produce cheaper gasoline, limit the tax on taconite to produce cheaper steel products, limit the tax on timber to produce cheaper lumber products, and could even limit Michigan's single business tax to make cheaper automobiles for the rest of the nation.

Congress has not ventured into this field in the past. I think it would be extremely unwise to do so now.

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should U.S. limit state

YES

by MAYOR DON FRASER

NO ISSUE IN RECENT YEARS has troubled Congress and the American public more deeply than our national energy crisis. Following the Organization of Petroleum Exporting Countries (OPEC) embargo in 1973, oil and gas prices have escalated at unprecedented rates. This situation, combined with the inability of American petroleum producers to keep pace with the nation's demand, has made us dangerously dependent on foreign oil imports.

In order to reduce this unhealthy dependence and become energy independent, we have established a national policy in favor of converting to our most abundant natural resource—coal. Two states, however—Montana and Wyoming—are taking advantage of our national energy crisis by imposing excessive severance taxes on coal mined within their borders. Montana now imposes a whopping 30 percent severance tax; Wyoming imposes a combined severance, excise and ad valorem tax of 17 percent. These severance tax levels are not only in direct conflict with our national policy in favor of encouraging and mandating coal consumption, they are flagrantly inequitable.

(Severance taxes are generally referred to as *ad valorem* taxes because they are imposed on the *value* of goods or services as that value is measured by price. Thus it is the cost per ton of coal produced upon which these excessive severance taxes are levied.

(Efforts have been made to compare the Wyoming and Montana tax levels with tax levels imposed on other fuel sources such as oil and natural gas on the basis of Btus. This is a faulty comparison. Btus are not units of value; they are units of energy.

(Moreover, different energy sources such as coal, gas and oil do not have interchangeable uses (e.g., you cannot put coal in your car). Therefore Btus are *not* interchangeable. Therefore, they are not appropriate units of comparison for measuring severance taxes.)

12.5% Ceiling Proposed

Legislation considered by the Congress would remedy this unfair situation by imposing a 12.5 percent limitation on coal severance taxes. It has attracted strong, broad-based, national support and a non-partisan coalition of congressional cosponsors.

H.R. 6625 and H.R. 6654, identical bills which would place a 12.5 percent limitation on taxes on coal shipped into interstate commerce, are co-sponsored by 79 members of the House of Representatives. Hearings were held before the Subcommittee on Energy and Power on March 21 and June 5. On Sept. 4 this legislation was advanced to the full Committee on Interstate and Foreign Commerce which approved the bill, 15 to 9, on September 16.

The Senate version, S. 2695 (which has 12 cosponsors), places a 12.5 percent limitation on state severance taxes on coal produced from federal and Indian lands. Hearings on it were held by the Senate Energy Committee on Aug. 6.

The following facts place the issue in the proper perspective and overwhelmingly support the need for remedial legislation:

• Our nation's energy policy mandates that electric utilities convert to coal. They have no choice.

Fraser

EDITOR'S NOTE: Federal legislative proposals to limit state coal severance taxes have intensified debate on energy, environmental and fiscal issues. The two states that would now be most directly affected by the legislation are Montana and Wyoming. PUBLIC POWER asked a leading proponent and a leading opponent of the legislation to pre-

• The bulk of America's low-sulfur coal is located in a few western states. Montana and Wyoming hold 40 percent of all U.S. coal reserves and 68 percent of the low-sulfur coal reserves.

• About *three-fourths* of this coal is found on federal lands—owned by all Americans.

• Montana's 30 percent severance tax and Wyoming's 17 percent severance tax are significantly higher than the coal severance taxes imposed by other coal-producing states. (For example, Oklahoma charges 5 cents per ton and Kentucky charges 4.5 percent of the gross value. The severance taxes imposed by Montana and Wyoming translate to tax rates as high as $4.48 per ton.)

• The Wyoming and Montana severance tax rates were raised to their current levels after the focus of our national energy policy was directed toward low-sulfur coal. (Prior to 1975, Montana's tax was only 34 cents per ton.)

• DOE projections substantiate a *95 percent increase in coal consumption* for electrical generation in the next five years. By 1990 more than 35 percent of our nation's coal needs will be supplied by Montana and Wyoming.

• By 1987, electricity consumers in 27 states will be paying *$360 million each year* in western coal severance taxes alone.

NERA Says 2 Cents/Ton Fair

The Montana 30 percent tax and the Wyoming 17 percent tax are many

continued on page 42

continued from page 38

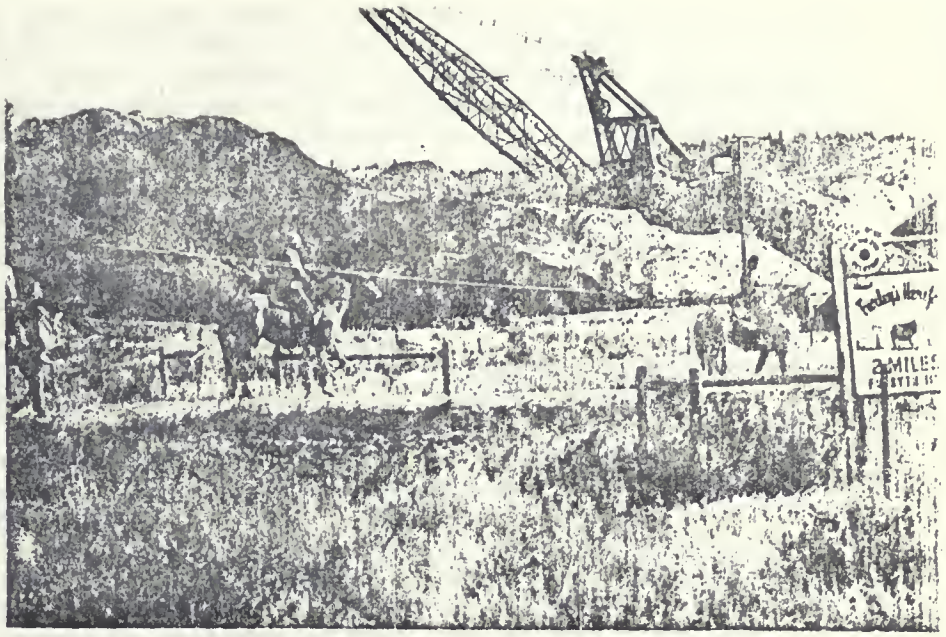
times higher than what is necessary to cover state costs incurred to support coal production. According to the National Economic Research Associates (NERA), which conducted an exhaustive examination of impact costs of coal production in Montana, two cents per ton is a fair estimate of the cost that coal mining imposes on local governmental bodies—including schools, hospitals, police, fire, sewage, recreation, welfare, libraries and general government. Additional costs, including environmental, to the state and others add four cents to each ton. Thus, NERA estimates that *a severance tax of six cents per ton, or 1.5% of value, is sufficient* to cover legitimate state coal production costs.

The figures quoted by NERA are consistent with a report recently released by the Congressional Budget Office (CBO). Using costs which would result in a "worst case situation," the CBO estimates support the conclusion that a 3 to 4 percent severance tax in Montana and Wyoming would be sufficient.

This same report substantiates that revenues from coal production in Montana and Wyoming will far exceed related costs: Wyoming's 1980 surplus of $15.7 million will increase to $328.2 million by 1990; and Montana's 1980 surplus of $5.1 million will increase to $84.8 million by 1990. Obviously, the 12.5 percent figure contained in H.R. 6625, H.R. 6654 and S. 2695 is more than generous to these states.

U.S. Aid Available

Additionally, generous federal funds from several sources are available to offset potential deleterious effects of mineral production. Under the Mineral Leasing Act of 1920, as amended, a full 50 percent of the 12.5 percent federal royalty on coal goes directly back to the producing states. Another 40 percent of the royalty is placed in a reclamation fund which is used for water projects in western states. The Fuel Use Act of 1978 authorized additional federal impact aid for coal-producing areas, and the Surface Mining Control and Reclamation Act of 1977 levies a 35 cent tax on each ton of strip-mined coal. *Fifty percent of this figure is returned directly to the state* for reclaiming strip-mined land. Surplus revenues received from this fund may be used for socioeconomic impact costs. Moreover, the same Federal Reclamation Act and state reclamation laws in Montana and Wyoming—among the strictest in the nation—require that all reclamation costs be borne by coal producers, rather than the states.



Ranching and strip-mining interests provide stark contrast in eastern Montana and Wyoming communities.—Photo by Michael Parfit

A brief look at where Montana has allocated its coal tax dollars is an eye-opener:

FUND	FY 79	FY 80	FY 81
Trust Fund (50% beginning in 1980)	$10,700,000	$23,600,000	$40,300,000
Alternative Energy Grants	$ 800,000	$ 1,500,000	$ 2,000,000
Local Impact	$ 5,400,000	$ 9,000,000	$ 7,100,000
Educational Trust	$ 3,100,000	$ 8,900,000	$ 8,000,000
State Equalization Aid (State School Foundation)	$ 3,200,000	$ 5,200,000	$ 4,000,000
County Land Planning	$ 300,000	$ 500,045	$ 400,000
Renewable Resources	$ 800,000	$ 1,300,000	$ 1,000,000
Parks and Cultural Projects	$ 8,000,000	$ 2,200,000	$ 2,000,000
State Libraries	—0—	$ 400,000	$ 400,000

The figures speak for themselves, particularly the *50 percent* of total severance tax revenues allocated by law to the trust fund—$40.3 million as compared with only $7.1 million for local impact in fiscal 1981. Montana clearly does not intend to use its severance tax dollars to alleviate the actual impact of coal production. Rather, these millions of dollars are being stashed away in a trust fund which, by law, requires a three-fourths vote of the state legislature to touch the principal.

The impact of the excessive taxes being levied on coal by Montana and Wyoming cannot be overstated. *Twenty-seven states will soon be consuming coal produced in these two states.* The coal severance taxes collected by Montana and Wyoming from these 27 states are expected to reach $360 million annually by 1987. In my own state of Minnesota alone, consumers paid approximately $16.5 million in western coal severance taxes in 1979.

Since fuel costs, including these severance taxes, are passed directly on to bill-paying consumers who have no voice in the tax level imposed by these producing states, it is the citizenry of the 27 consuming states who are bearing the unfair burden imposed by Wyoming and Montana.

Montana, Wyoming 'Gouging'

The 12.5 percent limitation contained in legislation currently pending before the U.S. House of Representatives and the U.S. Senate provides a more-than sufficient compensation to the states of Montana and Wyoming for their coal production costs. Simply stated, Mon-

continued on page 46

FRASER
continued from page 42

tana and Wyoming are gouging the energy-consuming states to the detriment of our national energy policy.

Opponents of badly needed remedial legislation have sought to obscure this fundamental fact by charging that a federal limitation on the rising tide of state severance taxes is an unprecedented intrusion on states' rights. In fact, the very opposite is true. The federal government has in the past stepped in to impose tax limitations in those few instances where states have stretched their taxing powers to abusive levels which threaten interstate commerce. In 1973 Congress passed the Airport Development Acceleration Act, a program intended to stimulate the growth of U.S. air transportation. One provision included in this program was a prohibition on state imposition of taxes or fees on persons traveling by air. This prohibition was the result of a congressional finding that such taxes "inhibit the growth of the air transportation system." Its constitutionality has been upheld in the courts.

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TOWE
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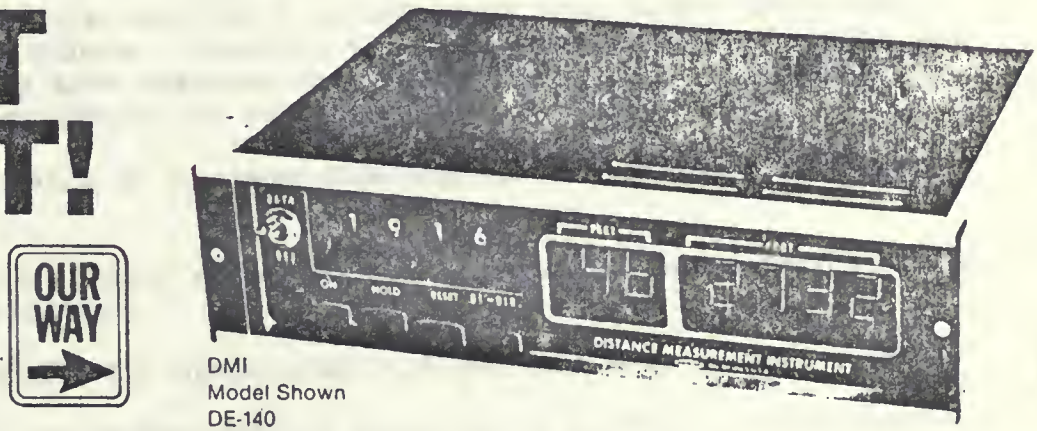

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Exhibit VI--4
TERRY COHEN rpt.
SPRING 1981

MINERAL TAX TRUST FUNDS AND SPECIAL FUNDS IN THE STATES

BACKGROUND

Following are brief summaries of various states' trust or other special funds financed through mineral tax collections. Included are funds that met the following criteria:

1. The fund is comprised wholly or in part from mineral tax collections.

2. The fund's principal is inviolate, semi-permanent, or at least retained in the fund at the close of each budget cycle.

3. The fund is intended to compensate the state for loss of nonrenewable mineral resources, mitigate impacts caused by mineral development, or aid economic diversification development to counterbalance dependence on mineral extraction.

Not included are:

1. School trust funds comprised of royalties, rentals, or bonuses from minerals on school lands.

2. Land reclamation funds financed through "conservation taxes" on minerals.

The summaries are intended to include every fund in the fifty states meeting the listed criteria. However, variations in state statutes' indices and fund structure may have obscured some smaller funds. The following procedures were used to compile the summaries.

1. Determination of all states collecting mineral severance or license taxes.

2. Research of these states' statutes to determine how mineral revenues are distributed.

3. Summarizing the characteristics of any fund meeting the criteria.

4. Calling the budget office in each state to learn the current balance in the fund and verify the summary information.

ALASKA

Name:	Alaska Permanent Trust Fund
Authority:	Article IX, Section 15, Constitution of Alaska. The article was effective February 21, 1977, after receiving an affirmative vote of the electorate.
Sources of Revenue:	1. 50% of all mineral lease rentals, royalties, royalty sale proceeds, net profit shares, federal mineral earned from state lands, revenue sharing payments, and bonuses from all mineral leases. 2. Any other money appropriated to or otherwise allocated by law to the fund (Section 37.13.010)
Current Balance:	$1.8 billion (June 11, 1981)
Status of Principal:	Inviolate. It must be invested in income-producing investments designated by state law (Section 37-13-120)
Interest:	1. 50% transferred to general fund. 2. 50% available for dividend payments to Alaska residents.

COLORADO

Name:	State Severance Tax Trust Fund
Purpose:	"The fund is to be perpetual and held in trust as replacement for depleted natural resources and for the development and conservation of the state's water resources."
Authority:	Section 39-29-109. The fund was created in 1977.
Source of Revenue:	50% of the revenue from the severance tax on metallic minerals, molybdenum ore, oil and gas, coal, and oil shale (effective June 30, 1981). Prior to fiscal year 1982, percentages varying from 35-100% of the severance tax collected from each mineral resource were allocated to the fund.
Current Balance:	$10.7 million (June 11, 1981)
Status of Principal:	The principal is "perpetual and held in trust". It may, however, be loaned to the Colorado water conservation board for state water projects. The loans must be approved by the General Assembly and repaid to the trust. (Sections 39-29-109 and 37-60-122).
Interest:	Deposited in the general fund.

FLORIDA

Name:	Conservation and Recreation Lands Trust Fund
Authority:	Section 253.023, F.S.A., established the fund in 1979.
Purpose:	To assure the availability of public lands on which to recreate.
Source of Revenue:	50% of the a) revenue from the first oil tax [Section 211.02(1)(c)], b) first gas tax (211.02(1)(c), c) severance tax on solid minerals and phosphate rock [Sections 211.31(1)(a) and (3)(a)].
Current Balance:	$6.3 million
Status of Principal:	"Nonlapsing, revolving fund." The governor and cabinet may allocate money from the fund to purchase recreational land or preserve archeological or historical sites.
Interest:	Redeposited in the fund.

MICHIGAN

Name:	Counter-Cyclical Budget and Economic Stabilization Fund
Authority:	Section 21.402, M.C.L.A. established the fund in 1977.
Purpose:	To set aside state revenue during periods of economic growth to be used to stabilize the state's financed during periods of economic stress.
Source of Revenue:	State general fund, which receives revenue from the oil and gas severance tax. The stabilization fund receives transfers from the general fund when Michigan's adjusted gross income grows by more than 2% per year.
Current Balance:	$0. At its high point (September, 1979), the fund contained $275 million. The state's recession in fiscal years 1980 and 1981 required expenditure of this balance.
Status of Principal:	The money remains in the fund unless real adjusted gross income declines from the previous year. The percentage decline is then multiplied by the total general fund revenue for the current fiscal year, and the funds transferred to the general fund. Some of the funds may also be used for job-creating projects when unemployment exceeds 8%.
Interest:	Reinvested in the fund.

MINNESOTA

A.

Name:	Iron Range Resources and Rehabilitation Board Account
Authority:	M.S.A. Section 298.22. The account was created in 1973.
Purpose:	The funds in the account are used to develop the remaining resources in an area in which distress or unemployment exists by reason of the removal of natural resources.
Source of Revenue:	3¢ of the $1.25 per gross ton tax on taconite and iron sulphides. The tax and the amount allocated to the account are indexed to the steel mill products index.
Current Balance:	Approximately $2.8 million per year is deposited in the fund and expended for program administration and grant awards. To date, no balances have been carried forward.
Status of Principal:	Unexpended money in the fund and all money paid to the state from development contracts financed from the account are redeposited in the account.
Interest:	Deposited in the general fund.

B.

Name:	Taconite Area Environmental Protection and Economic Development Funds
Authority:	M.S.A. Section 298.223, established the two funds in 1977.
Purpose:	To reclaim mine lands, promote economic development, and monitor mineral industry-related health problems.
Source of Revenue:	Remainder of the revenue from taconite tax collections after distribution to statutorily authorized funds. In 1979, the funds received 10.3% of the tax collections. The Environmental Fund receives 2/3 of the remainder and the Economic Development Fund receives 1/3.
Current Balance:	Economic Development Fund - $20 million Environmental Protection Fund - $15 million granted annually.
Status of Principal:	Revenue in the Economic Development Fund cannot be spent until 2002. The funds in the Environmental Protection Fund can be spent for projects approved by the governor and a legislative advisory committee.
Interest:	Reinvested in the respective funds.

Status of Principal:	The legislature may appropriate money in the fund by a 3/4 vote of each house. The balance in the fund must be invested as provided in state law 7-27-5.
Interest:	Interest may be appropriated by the legislature for the expenses of administering the fund and for capital outlay projects.

NORTH DAKOTA

A.

Name:	Depleted Natural Resource Trust Fund
Authority:	Section 57-62-02(2), NDCC, established the fund in 1977. The electorate gave the fund constitutional status in the 1980 election. (Article X, Section 21 of the North Dakota Constitution).
Purpose:	Grants and loans are made from the fund to "meet initial impact affecting basic governmental services, and directly necessitated by coal development impact."
Source of Revenue:	15% of coal severance tax collections.
Current Balance:	$9 million (May 30, 1981)
Status of Principal:	"Perpetual and held in trust." However, the board of university and school lands may make loans from the principal to local governments impacted by coal development. Loan repayments are deposited in the fund. The board may waive repayment requirements under certain conditions.
Interest:	Deposited in the state general fund. If, however, repayment requirements are waived on a loan, interest is redeposited in the fund in the amount of foregone repayment.

B.

Name:	Resource Trust Fund
Authority:	Section 57-51.1-07, NDCC. The fund was established through a 1980 initiative and amended by the 1981 legislature.
Purpose:	The legislature may appropriate funds from the trust for alternative energy research and water development projects.
Source of Revenue:	10% of the oil extraction tax. This tax, created by initiative, is 6.5% of the gross value of oil produced.

Current Balance:	Oil producers are currently protesting the extraction tax, so the collections are being held in a suspense account. The legislature estimates that $28.3 million will be deposited in the account by July 1, 1983.
Status of Principal:	The legislature may appropriate the principal to fund water development projects and energy research projects. Revenue generated from the project is redeposited in the fund.
Interest:	Deposited in the general fund.

SOUTH DAKOTA

Name:	Energy Development Impact Fund
Authority:	SDC 10-39A-8.1. The fund was created in 1979.
Purpose:	"For offsetting economic, social, and physical impacts resulting from energy development and production."
Source of Revenue:	16.67% of the collections from the energy minerals severance tax imposed on coal, lignite, petroleum, oil, natural gas, uranium, thorium, and any combination of minerals used to produce energy (effective July 1, 1981). Prior to fiscal year 1982, 50% of the collections were placed in the fund.
Current Balance:	$978,797 (June 5, 1981).
Status of Principal:	The funds may be granted by the legislature to mitigate impacts. Any unexpended funds are invested according to state law. The balance in the account may not exceed $1 million; excess funds are transferred to the general fund. The fund will cease to exist on June 30, 1984, and the remaining balance will be transferred to the general fund.
Interest:	Reinvested in fund.

WISCONSIN

Name:	Investment and Local Impact Fund
Authority:	W.S.A. Section 70.395. The funds was created in 1977.
Purpose:	"That the state may derive a benefit from the extraction of irreplaceable metalliferous minerals and in order to compensate the state and municipalities for costs, past, present, and future, incurred ... as a result of the loss (of minerals)."

Source of Revenue:	1. 60% of the net proceeds occupation tax on metallic minerals. 2. 20% of the occupation tax on iron ore concentrate.
Current Balance:	$1.25 million. To date, the fund has received $146,000 in tax revenue. The 1977 legislature appropriated a $2 million loan to the fund.
Status of Principal:	The local impact board may award grants "to municipalities for costs associated with social, educational, environmental, and economic impacts of metalliferous mineral mining." Any unexpended funds may, however, be retained in the fund and invested.
Interest:	Initial interest must be used to repay the original $2 million loan that established the fund. After repayment is complete, the interest will be reinvested in the fund.

WYOMING

Name:	Permanent Wyoming Mineral Trust Fund
Authority:	Article 15, Section 19 of the Wyoming Constitution. The section was approved by the electorate on November 5, 1974, and proclaimed in effect December 12, 1974.
Source of Revenue:	100% of the following excise taxes imposed on all minerals: 1. 2% of the gross value of uranium, trona, petroleum, natural gas, oil shale or other fossil fuel. 2. 2.5% of the gross value of coal.
Current Balance:	$231,297,100 (June 11, 1981)
Status of Principal:	"Inviolate" and invested according to state law. However, the legislature may specify by law conditions and terms under which monies in the fund may be loaned to political subdivisions of the state.
Interest:	Deposited in the general fund for appropriation.

Exhibit VII-1

DEPARTMENT OF COMMUNITY AFFAIRS
MONTANA COAL BOARD

TED SCHWINDEN GOVERNOR — CAPITOL STATION

STATE OF MONTANA

(406) 449 2400 — HELENA MONTANA 59620

June 15, 1981

MEMORANDUM

TO: Bill Christiansen
Attorney General's Office

FROM: Murdo A. Campbell, Administrative Officer MAC
Montana Coal Board

RE: Mill Levy Figures for Coal Impacted Local Governments

After researching the mill levy situation for the units of local government located in the coal impacted areas of Montana, it is important to base one's conclusions on the actual situation as it exists and not on rumors. The often quoted statement, "that most local governments are actually reducing their mill levies as the result of the coal development in their area" is false and the following list of examples will clearly disclose this fact.

When focusing attention on the three greatest coal impacted counties in eastern Montana, it is shown that two of the three have had substantial increases in their mill levies when comparing their pre-coal development years to the present. Treasure County heads the list in percentage of increase with 91% when comparing their 1969 levy of 32.56 mills to their 1981 levy of 62.04 mills. Their pre-coal development three year average (1967-69) of 32.04 mills compared to their latest three year average (1979-81) of 58.16 mills is an increase of 81%. Big Horn County follows registering an increase of 29% when comparing their 1969 levy of 23.91 mills to their 1981 figure of 30.74 mills. Their pre-coal development three year average (1967-69) of 24.77 mills compared to their latest three year average (1979-81) of 30.27 mills is a 22% increase. The only county showing a decrease in mill levies is Rosebud County where the major power plants are located.

When reviewing the figures for the major cities and towns in the impacted area, it is unanimous in that all are currently at maximum mill levy proportions in order to try to keep pace with the demands of the increased population associated with the coal development. Hardin, in Big Horn County, has increased their mill levy a gigantic 114% from a pre-coal development figure of 42.49 mills in 1969 to their current 1981 levy of 90.73 mills. Their latest three year average (1979-81) of 81.03 mills is an 88% increase over their pre-coal development average of 43.05 mills. Forsyth, in Rosebud County, has registered a 58% increase when comparing their 1969 pre-coal development levy of 43.00 mills to their 1981 figure of 68.00 mills. Their three year (1967-69) average of 43.05 mills compared to their latest three year (1979-81) average of 66.00 mills is a 53% increase. Hysham, in Treasure County, has a similar history with a 47% increase when comparing 1969 mills to 1981 mills and a 45% increase when comparing their three year pre-coal development average to their latest three year average.

Mill levy figures for the School Districts in the impacted area repeat the trend as Forsyth, Hysham and Hardin districts have had large increases while the Colstrip district reduced their levies corresponding to the Rosebud County percentage figures. However, it should be noted that Colstrip increased both their elementary and high school levies over the past year. The elementary levy increased 53% from 10.33 mills in 1980 to 16.00 mills in 1981, while the secondary increased a modest 12%. Forsyth elementary district levies balloned from 15.66 mills in 1969 to 59.14 mills last year for an increase of 278%. Their 1967-69 average of 15.24 mills compared to their latest three year average of 56.34 mills is a whopping 270% increase. Likewise, Hysham elementary district's levy for 1969 of 15.12 mills compared to their present 32.89 mills is an increase of 118%. Their 1967-69 average of 13.58 mills compared to their latest three year average of 25.67 mills is a sizable 89% increase. High school district levies also increased for both as Forsyth recorded an 82% increase for their three year average comparisons and Hysham registered a 90% increase for the same period. Hardin school district figures are even more staggering as their high school levy of 1.35 mills in 1969 compared to their current 1981 figure of 12.97 mills is an uncomprehensible 861% increase.

Attached is a list of the figures and percentages used while making the comparisons as contained in this memorandum.

MAC/bfs

Attachments

MILL LEVY COMPARISONS

CITIES:

HARDIN

Year		Mill Levy	Year		Mill Levy	Percent of Increase/Decrease
1967	-	43.21	1979	-	70.50	
1968	-	43.46	1980	-	81.85	
1969	-	42.49	1981	-	90.73	114%
Average	-	43.05	Average	-	81.03	38%

FORSYTH

Year		Mill Levy	Year		Mill Levy	Percent of Increase/Decrease
1967	-	38.00	1979	-	65.00	
1968	-	43.25	1980	-	65.00	
1969	-	43.00	1981	-	68.00	58%
Average	-	43.05	Average	-	66.00	53%

HYSHAM

Year		Mill Levy	Year		Mill Levy	Percent of Increase/Decrease
1967	-	44.30	1979	-	71.00	
1968	-	54.00	1980	-	71.25	
1969	-	59.00	1981	-	86.50	47%
Average	-	52.43	Average	-	76.25	45%

COUNTIES:

TREASURE COUNTY

Year		Mill Levy	Year		Mill Levy	Percent of Increase/Decrease
1967	-	32.77	1979	-	47.89	
1968	-	30.76	1980	-	59.69	
1969	-	32.56	1981	-	62.04	91%
Average	-	32.04	Average	-	58.16	81%

BIG HORN COUNTY

Year		Mill Levy	Year		Mill Levy	Percent of Increase/Decrease
1967	-	25.27	1979	-	30.66	
1968	-	25.14	1980	-	29.41	
1969	-	23.91	1981	-	30.74	29%
Average	-	24.77	Average	-	30.27	22%

ROSEBUD COUNTY

Year		Mill Levy	Year		Mill Levy	Percent of Increase/Decrease
1967	-	37.87	1979	-	25.62	
1968	-	39.37	1980	-	25.16	
1969	-	49.86	1981	-	15.46	-69%
Average	-	42.37	Average	-	23.08	-46%

SCHOOL DISTRICTS:

FORSYTH ELEMENTARY

Year		Mill Levy
1967	-	15.91
1968	-	14.16
1969	-	15.66
Average	-	15.24

Year		Mill Levy
1979	-	48.35
1980	-	61.52
1981	-	59.14
Average	-	56.34

Percent of Increase/Decrease
278%
270%

FORSYTH HIGH SCHOOL

Year		Mill Levy
1967	-	16.64
1968	-	12.52
1969	-	17.27
Average	-	15.48

Year		Mill Levy
1979	-	25.02
1980	-	26.69
1981	-	31.44
Average	-	28.72

Percent of Increase/Decrease
82%
86%

HYSHAM ELEMENTARY

Year		Mill Levy
1967	-	15.72
1968	-	9.89
1969	-	15.12
Average	-	13.58

Year		Mill Levy
1979	-	21.61
1980	-	22.52
1981	-	32.89
Average	-	25.67

Percent of Increase/Decrease
118%
89%

HYSHAM HIGH SCHOOL

Year		Mill Levy
1967	-	5.94
1968	-	5.30
1969	-	19.20
Average	-	10.15

Year		Mill Levy
1979	-	17.18
1980	-	18.32
1981	-	22.23
Average	-	19.24

Percent of Increase/Decrease
16%
90%

HARDIN ELEMENTARY

Year		Mill Levy
1967	-	19.99
1968	-	23.99
1969	-	18.10
Average	-	20.69

Year		Mill Levy
1979	-	21.00
1980	-	13.70
1981	-	16.87
Average	-	17.19

Percent of Increase/Decrease
7%
20%

HARDIN HIGH SCHOOL

Year		Mill Levy
1967	-	1.64
1968	-	2.19
1969	-	1.35
Average	-	1.73

Year		Mill Levy
1979	-	11.00
1980	-	10.73
1981	-	12.97
Average	-	11.57

Percent of Increase/Decrease
861%
569%

COLSTRIP ELEMENTARY

Year		Mill Levy
1967	-	24.80
1968	-	26.26
1969	-	21.43
Average	-	24.16

Year		Mill Levy
1979	-	11.03
1980	-	10.33
1981	-	16.00
Average	-	12.45

Percent of Increase/Decrease
-25%
-48%

COLSTRIP HIGH SCHOOL

Year		Mill Levy
1967	-	12.70
1968	-	13.46
1969	-	19.82
Average	-	15.33

Year		Mill Levy
1979	-	11.04
1980	-	9.42
1981	-	10.52
Average	-	10.33

Percent of Increase/Decrease
-47%
-33%

EXHIBIT 1

UNKNOWNS - NATURAL

Aquifer interruption

Uncertainty of reclamation

Subsidence

Erosion

Surface water leaching contamination

Ground water contamination

Land out of service

Wildlife habitat loss

Wildlife habitat more poaching

Wildlife habitat killed on highway

Blasting (overburden and deposit)

Compaction

UNKNOWNS - SOCIAL

Drug and alcohol abuse

Divorce

Child and spouse abuse

Delinquency

Truancy

Illegitimate births

Crime in general

Inadequate police, fire, sanitation (services in general)

Farm labor competition

Diesel repair mechanics